he Iron

A Review of the Hardware, Iron and Metal Trades.

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A Modern English Rail Finishing
Plant.

In a recent issue Engineering illustrates a finishing plant recently designed by Mr. E. Windsor Richards and Mr. Samuel Godfray, of Middlesborough. It consists of a machine for straightening or bending rails, together with mechanical appliances for handling the rails after they have passed this machine. Figs. I and 2 show the general arrangement of the land at the adjustable roil of the bottom row is gared to one of the driven roils of the hards and the rails, after leaving the the rails are gared to one of the driven roils of the machine for which Engineering describes as follows:

The wholes Extending from one main frame to the other ranks and two rows of three in each row being shifted, the live roilers (together with the shifted, the live roilers (together with the shifted, the live roilers (together with the bevel wheels on the line shaft from which will have been straightened in one direction in each row being for the purpose, so that will have been straightened in one direction in each row being delevation). From the slotting machine the rails are carried on by the live roilers to the drilling machine the rails are carried on by the live roilers to the drilling machine the rails are carried on by the live roilers and the wind turned to na bed, along which it can be shifted, the live roilers (together with the bevel wheels on the line shaft from which will have been straightened in one direction in each, two of the shafts, carry-bid in each row being delevation). From the slotting machine the rails are carried on by the liver roilers to the drilling. From the slotting machine the rails are carried on by the liver roilers to the drilling machine the rails are passed to her to the vertical roils, will have been straightened on by the lower of the way of the slotting had. From the vertical roils will have been straightened to not the three roilers and the vertical roils will be effected between the horizontally: or the roils may be on the line shaft from which they are how the rails, after leaving the straightening machine, are carried, by systems of live rollers to the slotting machine, thence to the rolls, the axes of four of these, F₂, being fixed results of the straightening machine in the rollers rolls, or vice them into trucks.

The straightening machine just described results for stacking them and loading the finishing enabling all the finishing them into trucks.

The straightening machine just described results for stacking them and loading them into trucks.

The straightening machine just described results for stacking them and loading them into trucks.

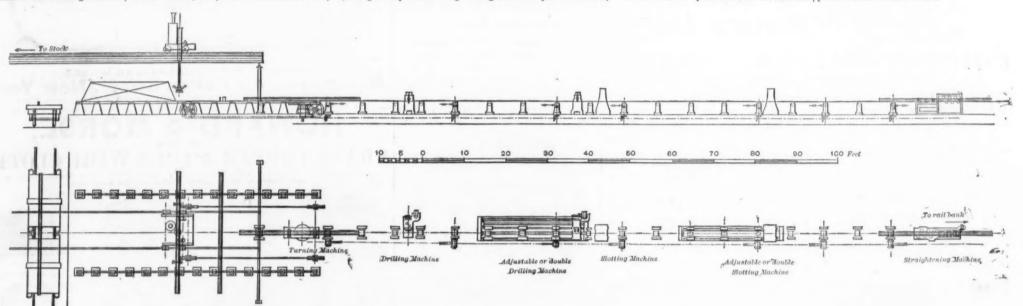
The straightening machine just described results for stacking them and loading them into trucks.

The straightening machine just described results for stacking them and loading them into trucks.

The straightening machine just described results for stacking them and loading them into trucks.

horizontal rolls will be effected in a direction at right angles to the first (i.e., horizontally); so that both ends of the rail may be operated or other article will be straightened by passing between the horizontal rolls, and bent by passing between the vertical rolls, or vice them into trucks.

heads adjustable to different may be operated appeared or the rail may be operated or the rail may be operated or the views just referred crane indicated in the views just referred or by another series of live rollers to the appliances for stacking them and loading them into trucks.



Figs. 1 and 2.- Elevation and Plan of Rail Finishing Plant.

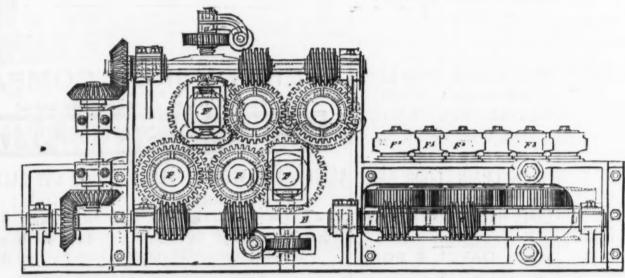


Fig. 3 .- Elevation of Rail Straightening Machine.

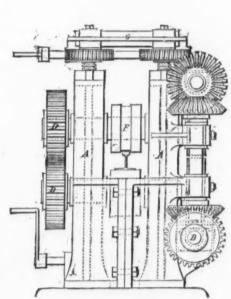


Fig. 5 .- End Elevation.

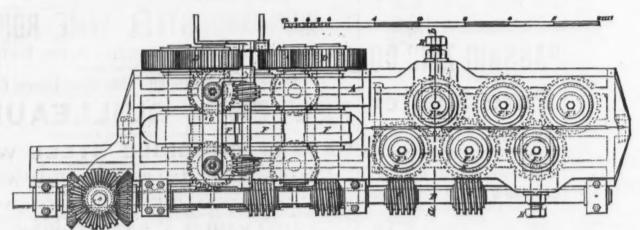


Fig. 4.—Plan of Rail Straightening Machine.

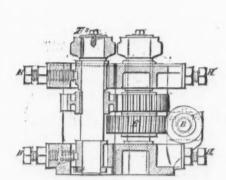


Fig. 6. - Vertical Section

A MODERN ENGLISH RAIL FINISHING PLANT.

drilling machine, and thence to the appliances by which the rails are stacked or loaded into trucks. The straightening or loaded into trucks. The straightening or loaded into trucks. The straightening or loaded into trucks are adjustable by means of the screws H.E. Two of the vertical rolls are driven by the bending machine is shown drawn to a larger scale in Figs. 3, 4, 5 and 6, and it is with this machine we will first deal.

Referring to Figs. 3 to 6, it will be seen that the machine consists of two main frames, A, one of which is provided with brackets for carrying the bearings of two driving shafts. The lower driving shafts. The lower driving shafts. The lower driving shafts are appointed to the correct leaves the first of the screws A is the main frame (see Fig. 3) garaged the rails are cated on simultaneously and the rail she guidence to the correct length. The form of machine which it is provided with brackets for carrying the bearings of two driving shafts. The lower driving shafts. The lower driving shafts are provided guide rollers (not shown in Figs. 4) and two pairs of bevig egers, as shown in Figs. 3 and 10, page 3, the position of this length of the adjusting machine is shown in feat of the rails are conveyed by a system of live rollers (driven by friction (see Figs. 1 and 2), where both ends of the rail is read to the origin to Figs. 3 and 10, page 3, the position of this length of the chiral to the chiral from the slotting machine (see Figs. 1 and 2), where both ends of the rail in reduced to the correct length. The form of shape suitable to the two sciences of the rail and turntable, shown in detail in Figs. 9 and 10, page 3, the position of this clear the finished translation of the rails are conveyed by the surface of the rails are cated on simultaneously and the rail and turntable are converted to the origin and the rails are conveyed by the surface of the rail and two pairs of the rails are cated on simultaneously and the rail and two pairs of the rails are carrying at its delivered by the

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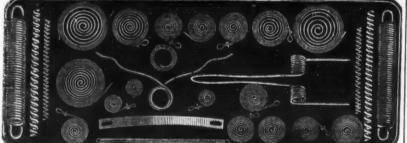
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An Essay on Springs.

Our enterprising contemporary the Coach Painter for May 15 presents the following humorous account of springs, which, although containing some allusions to houses in the trade and patented devices that may not be fully understood by all our readers,

There are many kinds of springs known

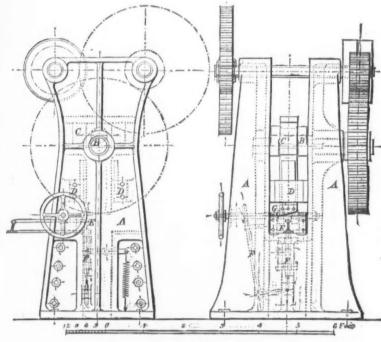
are adapted to all classes of work, from the lightest carriage to the heaviest wagon.

The most notable of these springs are the elliptic, platform, C, side and cross springs.

There are many patent springs, each of which is better than any of its competitors. not be fully understood by all our readers, we think will be entertaining to those who may peruse it:

Chief among the patent springs are the Brewster, Timken, Dexter, Whitney, Henry and the Stivers Circular Spring.

N. B.-There are other circular springs-



Figs. 7 and 8 .- Rail Slotting Machine.

I, Hand springs; 2, Vehicle springs; 3, Car springs; 4, Mountain springs; 5, Mineral springs; 6, the Spring season.

to mankind at the present day, and their that is, the owners advertise by means of number daily increases; in fact, very many kinds of springs spring forth in the spring.

Springs have been divided by learned scientists into six distinct classes, as follows:

Elliptic springs are usually made in the form of an ellipse, and were quite popular at one time; in fact, they still retain their

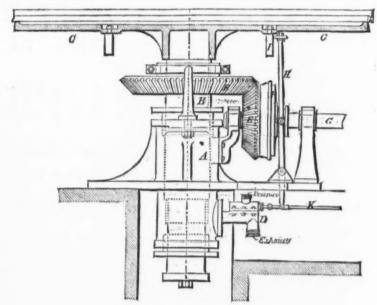


Fig. 9.-Elevation of Rail Lift and Turntable.

Many of these classes are again sub-supremacy in those sections where trade divided, as will be noted further on in this journals do not circulate.

Hand springs were known to the ancients. Hand springs were known to the ancients. The Grecian athletes were noted for their proficiency in the art of making hand springs; in fact, the trade journals of that period speak of these springs as being l'light, easy and graceful, permitting the body to be suspended very low." Hand springs, however, are not so popular as they

Platform springs are used on the heavier classes of vehicles. The platform is essen-

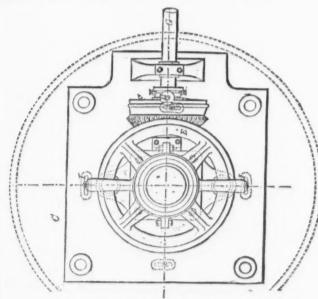


Fig. 10.-Plan of Rail Lift and Turntable.

once were, nearly all springs being now made by machinery.

Vehicle springs have now come into almost general use—especially on vehicles.

Vehicle springs are really mineral springs were first applied to vehicles is not known, though it is believed the chariots of Pharaoh, King of Egypt, were fitted with a red C-spring.

Vehicle springs are not used on either hearses or made by machinery.

C-springs are not used on either hearses or made by machinery.

Side springs are just off the road where the thirsty traveler resteth and batheth his feet. They are easy of construction. Any one can make a side spring, especially if a springs were first applied to vehicles is not when the thirsty traveler resteth and batheth his feet. They are easy of construction. Any one can make a side spring, especially if a springs were first applied to vehicles is not known, though it is believed the chariots of Pharaoh, King of Egypt, were fitted with a red C-spring.

Vehicle springs are of many kinds and that their buggies were hung so high that it

once were, nearly all springs being now C-springs are not used on either hearses or made by machinery.

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"Hail, gentle spring!" nd people, thinking he alluded to the Timken spring, hailed it with fond delight.

The Dexter is essentially a mountain pring, running easy over rocks and stones,

spring, running easy over rocks and stones, but finding its way into every valley.

The Whitney is a torsion spring, or was when it started, and the price at which it is sold convinces us that it is not an extertion spring. The great success of this spring is due to storms, the origin of so many lesser springs. The Whitney Spring Co. is limited, but the number of its springs in use is not.

was inconvenient to alight. To remedy this obstruction to the quenching of one's thirst, the side-bar buggy was introduced, and has been introducing ever since.

The Brewster spring consists of elliptic springs carefully split in two and attached to the side bar, which is a stick of hickory about the size of a shillalah. To give our readers a clearer idea of these springs, we

desire to state that the body rests on the springs and not on the side bars.

The Timken spring is a new spring, and a very gentle and easy-riding spring. When it first made its appearance, some Western poet wrote a beautiful poem, beginning:

The Henry spring consists of a single leaf, which proves it to be an early spring, before the leaves are thick. The Henry spring is of all shapes, sizes and thicknesses; in fact, a changeable spring.

The Stivers spring is a good one, but has ot been as much advertised as some others; nence it is not so well-known. hence it is not so well-known. Let, to speak the truth, there is no end to the Stivers springs used in this country, because they are circular and have no end. (N. B.—There are other springs which are not circular—that end suddenly because they are

not advertised.) not advertised.)

Car Springs.—All passenger cars are supposed to have springs. On many of our railroads the passengers imagine the springs are made from hewn blocks of stone, though rvestigation proves such is not the case. Car springs are not very extensively adver-

tised, though in close contact at all times with car journals. Mountain springs usually consist of water and are found on every hill side and mountain side. These mountain springs grow into large streams, ultimately forming rivers and lakes. As an example, take Lake Whitney, near New Haven, Conn., which owes its origin to the Whitney Spring. It is probably owing to this fact that springs are frequently painted with lakes. Side springs are good mountain springs, the Dexter being specially valuable in this connection.

Cross springs are not, necessarily, bad springs. In this respect springs differ from human beings, for a spring may be well tempered and yet be cross

Mineral Springs.—All springs are mineral, being made of steel. Some springs are

being made of steel. Some springs are more mineral than others: Saratoga Springs for instance. We decline saying anything about Saratoga Springs, however, as they are not advertised in this journal.

The spring season is that part of the year immediately preceding summer. (This year is an exception.) 'Tis then the carriage builders begin their labors, and there is a great demand for springs; heapen it is great demand for springs; hence it is called the spring season. There are various kinds of spring, to wit: Early springs—to which class belong the thoroughbrace and elliptic spring; late springs—the side bars; and gentle springs—all patent springs go under this head.

Trade journals are not the only things to puff springs. Occasionally winter gives them a severe puff. Moreover, myriads of poets have wrestled with this theme for

ountless ages.

"Spring, sprang, beautiful sprung' has been a keynote to many a master-pieco. But it remained for us to treat spring in a summar-y manner, which autumn make the spring makers advertise. Perhaps our theories are fall-acious, though we are now winter rible earnest.

Art and Manufacture.

This compound term is employed to disthis compound term is employed to distinguish a certain class of manufactures of a scientific and ingenious nature from others which only require manual skill and dexterity. The line of demarkation between the fine arts and the manufacturing arts is undefined, and in many respects they blend together. From the period of the seventeenth century science and art have been drawn more closely together, and in later years have made rapid progress, each mutually assisting the other.

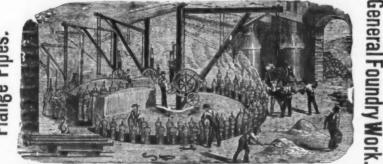
The establishment of schools of art in

connection with manufactures is only of re-cent date in England; but the manner in which all classes have aided and supported which all classes have aided and supported the various Schools of Design and Mechanics' Institutions shows that the nation appreci-ates the value of cultivating manufacturing art. We see the same thing also in the great success which has attended the production of popular works on science in mod-ern times. The discoveries of photography ern times. The discoveries or photography and electro-plating no doubt tended to form closer ties between science and art, while the importance of the establishment of the Museum of South Kensington cannot well be overrated. By means of this institution and others of a like character, the knowledge of science and art is disseminated among ern times. the workmen and workwomen of the king-

Another step in the same direction is the appointment of eminent sculptors and painters in order to design models and patterns for manufacturers. Although it is only recently that this country has turned its attention to the furthering of manufacturing art, other nations in Europe have long acknowledged its great importance. The great Exhibition of 1851, by bringing our workmen in contact with foreign workmen and their work, gave a decided impulse to our skilled workmen, and led to much healthy emulation and rivalry. In France, more attention is paid to the artistic education of artisans than in any other country, and we see it reflected in all their handicraft. The Conservatoire des Arts et Metiers, in Paris, is a most remarkable institution. It consists of a number of large halls, each of which is devoted to some particular trade or branch of manufacture, and we statis a particular trade or branch of manufacture, Another step in the same direction is the

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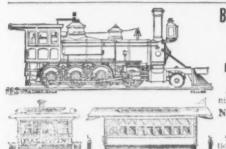
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and manufactured produce, together with machinery molders, stove-plate molders, all the tools and implements employed in the process. Lecturers are appointed to the hall for the instruction of the people. It has been in existence for more than 75 years, and was first suggested by the celebrated philosopher, Rene Descartes, in the seventeenth century. The government is so convinced of the importance of this establishment that it supports it with an annual grant of 150,000 francs (\$30,000). for the instruction of the people. It has been in existence for more than 75 years, and was first suggested by the celebrated philosopher, Rene Descartes, in the seventeenth century. The government is so convinced of the importance of this establishment that it supports it with an annual grant of 150,000 francs (\$30,000).

to illustrate ornamental art, and there is an excellent library in connection with the institution. Too much praise cannot be bestowed on such an undertaking as this. The usefulness of bringing together men of the same trade for the interchange of ideas is universally acknowledged, and it is now felt that if the workman receives sound instruction in science and art, it not only adds to his intelligence and comfort, but also secures the advance and prosperity of our manufacturing arts.—London Pottery Gazette.

Papers on Practical Founding .-

BY EDWARD KIRK.

CLEANING THE CASTINGS.

In stove founding heavy and light black ing are always used upon the face of the molds to prevent the molding sand from be-ing burned by the molten iron, so that it will adhere to the surface of the casting. These blackings are only applied to the one side of blackings are only applied to the one side of the molds, and even on that side they do not fally prevent the sand from being burned by the molten iron, so that it will adhere to some parts of the casting. All castings, after they have been turned out of the molds, must be cleaned to remove the adhering sand from the side of the casting adhering sand from the side of the casting where the mold was not blacked, and also to remove any sand that may have adhered to the casting on the side where the mold was blacked. For the purpose of cleaning the castings of all the sand that may have been burned upon either side of them, they are all removed from the molding room to the cleaning or scratch room, in which are agranged rattle barrels; in which which are arranged rattle barrels, in which many of the castings are cleaned. Cleaning benches are also arranged, upon which all castings are cloaned that are not cleaned in the rattle barrels.

In some foundries the principal part of this cleaning is done in the rattle barrels, into which all the castings to be cleaned are which all the castings to be cleaned are loosely packed, with cinder or small scrap iron between them. The rattle barrel is made to revolve slowly, so that the castings will rub slowly against each other and against the cinders and fine scrap. This removes all the sand from the castings, and rubs or grinds off all the pins and roughness from them, and gives them a prefeatly smooth. them and gives them a perfectly smooth surface. But the cleaning of the castings in this way grinds off and destroys the fine surface given to the castings by the fine molding sand and blacking, and in all foundries where first class work is made, none but the fire backs, grates and other inside plate are cleaned in the rattle barrels. All the plate are cleaned in the rattle barrels. All the outside plates are cleaned by hand upon the cleaning benches, with the cleaning brush and scraps, which are used in such a way as not to scratch or destroy the surface of the casting. This work of cleaning the casting is done by laboring men and boys, and one casting cleaner is required to every eight or ten molders. The cleaning brushes generally used for cleaning stove-plate castings are made of flat steel wire that is cut ings are made of flat steel wire that is cut into lengths of from 3 to 4 inches and made into regular brushes. These brushes made into regular brushes. These brushes are manufactured by parties who have patents on them, and they are sold in the market the same as other brushes. Some founders do not use the flat-wire brushes, on account of their high price, but make their own cleaning brushes out of fine round wire, which is cut into lengths of from 8 to 10 inches. A sufficient number of these pieces are bunched together to form a brush of any desired size, which is held together by a binding wire, which is tightly wrapped around the center of it, so that either end can be used as a brush. Still other founders around the center of it, so that either end can be used as a brush. Still other founders make their wire brushes by cutting the wire to the desired length and dipping the one end of the brush into a ladle of molten iron, so as to heat the ends of the wires and bind them all together with the molten iron that adheres to them. Either of these ways of making a cleaning brush makes a very good brush, but the wrapped brush is the best, for the heating of the ends often takes the temper heating of the ends often takes the temper out of the wire, and when the brush is used a short time the wires bend up on the ends and destroy the brush. The scrapers used for cleaning castings are made of old files which are drawn down like a chisel at the end, and at about 2 inches from the end the file is given a square bend sideways to form the scraper. For some pieces the file is drawn down at the end and used straight. The rattle barrels and these brushes and scrapers are about the only tools that are used in cleaning stove castings, and as fast as the castings are cleaned with them they are taken by the casting wheelers from the cleaning room to the mounting room, where cleaning room to the mounting room, where they are all piled upon the racks or shelves until wanted for use in mounting stoves or "In all large stove foundries where the stoves

grant of 150,000 francs (\$30,000).

The selection and arrangement of the objects in these halls are very interesting, since, by exhibiting the implements and machines that have been used from medieval improvement can be noted at once. In one department, porcelain and chinaware in all stages of their manufacture can be seen: in stages of their manufacture can be seen; in another, the process of making clocks and watches. There are models of every variety of steam engine and machine. One hall is devoted to chemistry and electricity, and light casting, so far as the warping or twisting of casting, so far as the warping or twisting of devoted to chemistry and electricity, and displays all the apparatus employed, from the crude and clumsy objects of 100 years ago to the delicately finished implements of the manipulator of to-day. Some of the rooms have the ceilings, floors and walls decorated to illustrate ornamental art, and there is an excellent library in connection with the institution. Too much praise cannot be bestowed on such an undertaking as this. The usefulness of bringing together men of the molder requires long experience, yet by many machinery molders stove-plate molding is looked upon as a kind of side show to the business. They imagine that they could make stove plate as easily as rolling off a log, and they could even teach stove molders how to do it. So far are these machinery molders wrong in their imagination that there is not one of them in fifty who could possibly make a bottom oven plate (the plainest piece in a stove) so that it would be of the proper shape and weight. There is not one of them in ten who has worked at machinery molding for ten years who can ever learn to become a first-class stove-plate molder. A regular stove founder would rather at any time employ a green apprentice boy than a first-class machinery molder to mold stove plate. The time that an apprentice boy is required to serve when learning stove molding is from three to four years, and the number of apprentices employed in each number of apprentices employed in each stove foundry where the molders' union have control is one apprentice to every eight molders employed, and one apprentice for the shop. In foundries where the molders' union has not got control, more apprentices are employed in proportion to the number of molders. It is very seldom, however, that more than one apprentice is employed to four or five molders. In some foundries even the number of apprentices allowed by the molders' union are not employed, for the founder cannot make money out of an apprentice boy the first year, and some of them will break more patterns and burn out more flasks the first year than the profits more flasks the first year than the profits made on them in the next two or three years will pay for. The amount of wages paid to apprentice boys differs a little in different localities and in different sized foundries. In small foundries they are employed by the year, and for the first year they receive their board and about \$25 in money; for the second year, \$50; for the third year, \$100; and for fourth year, \$200. In large foundries they get about what pays their board the first year, and after that they are put to work by the piece, and receive from 15 to 25 per cent. less per piece than a journey-25 per cent. less per piece than a journey-man molder would receive for the same piece, so that after the first year their wages depend entirely upon their abilities. Their work is examined and discounted the same as the work of the regular molders is. This way of working and paying apprentices is decidedly the best, for it makes them take more interest in their work, and makes faster and better molders of them.

and better molders of them.

In some stove foundries each molder has a man or boy to help him riddle and shovel the sand into the flasks, and ram up the drag part of the flasks. These helpers are called "buckshires," and are always paid by the molder, who gives them from 20 to 30 per cent. of what the two of them earn, while the realthy softs the halves for his work. the molder gets the balance for his work. This gives the molder the lion's share of the This gives the molder the hon's share of the wages, and a molder with a good helper can always earn from 20 to 30 per cent. more wages than he can without a helper. The employment of helper makes less work for the molders, and throws a great many of them out of employment. For this reason the working of helpers has been stopped in the majority of stove foundries. Helpers are considered foundries the stopped for the stopped foundries. dry laborers, and very few of them ever get to be journeymen molders except in case of strikes, when many of them take floors and

become molders. Stove-plate molders differ in many respects from any other molders, or any other class from any other molders, or any other class of workmen, for they always seem anxious to put up as large a day's work as they possibly can, so as to make large wages. Yet it does not make any difference whether they have a steady job or are only "skinning the cat" (and don't know how soon the cat will die), they are always ready and willing to take a day off on the slightest pretext of their own making. If a molder wishes to take a day off he will seldom tell the foreman the night before that he wishes to be

antil wanted for use in mounting stoves or filling orders for odd plates.

STOVE-PLATE MOLDERS.

The molding trade, like almost every other trade, is divided into different branches. An apprentice boy when learning the trade, only learns one branch of molding, so that the molders are divided into dry sand, green sand and loam molders, and in turn the green-sand molders are divided into dry sand, green sand molders are dry dry sand are put to work on the floors where a molder eat," and if there are none of them are off every day. In order to keep the pieces of them are off every day. In order to keep the pieces of them are off every day. In order to keep the pieces of them are off every day. In order to keep the pieces of them are off every day. In order to keep the pieces of them are off every day. In order to keep the pieces of them are off every day. In order to keep the proven to work on the floors where a molders are employed, some of them are off every day. In order to keep the proven to work on the floors where a molders are employed, some of them are off every day. In order to keep the proven to work on the floors where a molder are off every day. In order to keep the proven to work on the floors where a molder are employed, some of them are of every day. In order to keep the stoves even, a certain number of molders are employed, some of them are of them are off every day.

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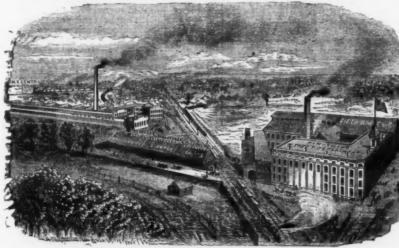
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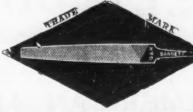
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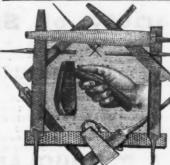
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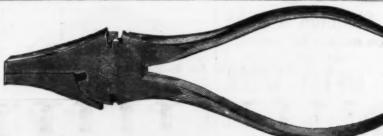
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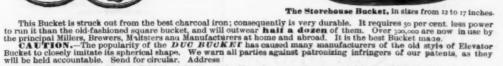


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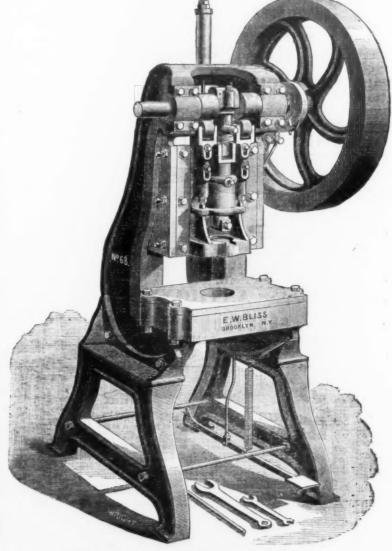
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and all put on their coats and take their dinner buckets and slip out the back way and go home. The balance of the molders who want to work will say that there are not enough men in the shop to run a heat. So they put on their coats, one after another, and slip out. It often happens that the foundry will be full of men, all apparently hard at work at 3 or 9 o'clock in the morning, and if the foreman goes out, and is gone 15 or 20 minutes, he may return to find not a man in the shop. This way of going to work in the morning and working one or two hours and then going home is a great loss to the founder, for he has to get up steam, and all the laborers and day work men are put to work and must receive pay for their one or two hours' work or be kept at work, whether the molders work or not. About a stove foundry there is only a certain amount of laboring work to be done, and every hour that a laborer works when the molders do not work is only a killing of time and a dead loss to the founder. The stove founders over the country have tried every imaginable way to break up this habit of working one or two hours in the morning and then going home. Many of the founderis have their windows all barred up with iron bars, and look more like prisons than foundries, while others are built with only one door, and all the windows are put in up near the roof. It is no use, for, if the molders take a



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The French government has for some time past been contemplating the construction of a great railway tunnel which should bring Paris and the Northern parts of France into more direct communication with Italy than is afforded by the existing tunnel through Bliss & Williams, corner of Plymouth, Jay

notion to go home they will get out some way; and they are just like a lot of sheep, when one makes a start they all follow, and they always arrange things so that the boss can never find out who first makes the start to be start to go home they will get out some than those required for the Simplon Tunnel. By this line the distance between Paris or London and Brindisi would be shortened by 23.9 miles, but the greatest benefit France and Italy would reap from it would be the 23.9 miles, but the greatest benefit France and Italy would reap from it would be the the large additional facilities the tunnel would offer for commerce between the teem-ing populations of the two countries.

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more direct communication with Italy than is afforded by the existing tunnel through Mont Cenis. The projects proposed include a tunnel through Mont Blanc, and another through the Simplon or the Great St. Bernard. The last of the three has found very few friends, but it appears likely that both the former projects will be carried out. The projected Simplon Tunnel is 60,719 feet in length, while that through Mont Blanc is 44,292 feet. Comparing these with the other Alpine tunnels, we find that the Mont Cenis is 40,093 feet, and the St. Gothard 48,952 feet long. The Simplon would, therefore, be the longest of all; but this is compensated for by the fact that it is at a much lower level than the rest, the entrance at Brieg being only 2333 feet, and that at Iselle 2253 feet above the sea level. The entrances to the Mont Blanc Tunnel, on the other hand, would be 3345 feet at Montquart, and 4215 feet at Entrèves, above the level of the sea. The Bardonnêche entrance to the Mont Cenis Tunnel is 3970 feet, and that at Isola Cenis Tunnel is 3970 feet, and that at Isola Cenis Tunnel is 3970 feet, and that at Isola Cenis Tunnel is 3970 feet, and that at Isola Cenis Tunnel is 3970 feet, and that at Isola Cenis Tunnel is 3970 feet, and that at Isola Cenis Tunnel is 3970 feet, and that at Isola Cenis Tunnel is 3970 feet, and that at Isola Cenis Tunnel is 3970 feet, and that at Isola Cenis Tunnel is 3970 feet, and that at Isola Cenis Tunnel is 3970 feet, and that at Isola Cenis Tunnel is 3970 feet, and that at Isola Cenis Tunnel is 3970 feet, and that at Isola Cenis Tunnel is 3970 feet, and that at Isola Cenis Tunnel is 3970 feet, and that at Isola Cenis Tunnel is 3970 feet, and that at Isola Cenis Tunnel is 3970 feet, and cenis Tunnel is 3970 feet, and the Action Cenis Tunnel is 3970 feet, and cenis Tunnel is 3970 feet, and cenis Tunnel is 3970 feet, and cenis Tunnel is 3970 feet. The Cenis Tunnel is 397 other hand, would be 3345 feet at Montquart, and 4215 feet at Entrèves, above the level of the sea. The Bardonnêche entrance to the Mont Cenis Tunnel is 3970 feet, and that at Modane 3799 feet above sea level; while in the case of the St. Gothard Tunnel, the northern entrance at Gosehenen is 3638 feet, and the southern at Airolo 3756 feet above the level of the sea. Thus, the Mont Cenis Tunnel is shorter, but 330 feet higher, than the Mont Blanc, while the Simplon would be almost half as long again, but would be about 1000 feet lower.

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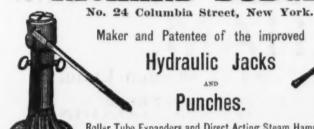
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The Profits of Labor and Capital.

The Chicago Tribune says: The censuses of the various European States show a continuous increase of population, notwith-standing the immigration. Since 1875, the population of Germany has increased 2,500,-000, making that of the empire at present 45,194,172, and the *Bulletin* estimates that in 1900 this population will be 60,000,000. The same paper suggests the very important question, and one of great concern to this country, whether the means for feeding these people keeps pace with the increase of num-bers. From an article in La Statistique de France is quoted a table showing the increase in the rate of wages in France in different trades from 1853 to 1877, which table is as

		e wages	
		diem.	Inc.
	1853. Frs.	1877. Frs.	per cent.
Jewelers	2.74	4.04	47
Butchers	1.73	2.84	64
Bakers	1.90	3.31	74
Brewers	2.20	3-33	51
Brickmakers	1 88	2.80	49
Coachmakers		3.48	57
Colliers	1.83	2.56	40
Hatters	2.12	3.20	5.1
Carpenters	2.20	3.74	70
Blacksmiths		3.22	57
Hosiers		2.46	37
Shoemakers		2.76	64
Cutlers	x.80	2.83	57
Slaters	2.16	3.57	65
Cabinetmakers	2.20	3.36	53
Tinsmiths	2.04	3.08	41
Watchmakers	2.43	3.86	59
Printers	2.40	3-45	4.4
Gardeners	1.78	2.70	52
Masons	2 07	3.28	58
Painters	2.20	3 - 19	54
Barbers	1.35	2.30	70
Plumbers	2.15	3.32	47
Bookbinders	1.92	2.82	47
Sawyers	3.01	3.29	64
Saddlers	2.14	3.11	45
Locksmiths	2.16	3.28	52
Tailors	1.96	3.03	54
Tanners	2.01	3.01	50
Upholsterers	2.39	3.53	48
Dyers	1.91	2.85	49
Workmen (laborers)	1.57	2.67	70
Weavers	1.43	2.33	63
Coopers	1.98	3.02	52
Turners	1.94	3.01	55
Glaziers	2.06	3.05	38
	Personal Principal Principa	montesork	2000000
General average	2.06	3.14	52

The increase in wages during these 24 years has averaged 52 per cent., and the increase continues. The same rise in wages has been general in all the States of Europe -in some places greater and in others less
-and the rise continues to this time. There are two facts noted as having special reference to this rise in the price of labor. The one is that the price of bread has remained stationary, and the other is that the increase of wages has been greater in those trades

in which machinery has been introduced.

In a recent article by Mr. Edward Atkinson, of Boston, he points out that during the 10 years from 1870 to 1879, inclusive, there was a saving in the cost of transportation of merchandise, which largely enters into the cost of the articles, as compared with the rates charged from 1866 to 1869. inclusive, equal to \$1,200,000,000 in gold coin. He computed the values of certain quantities of the several kinds of breadstuffs, and also of beef, pork, butter, lard and wool, and ascertained that the values of these articles in 1869 in New York aggregated \$632.68, and in 1880, \$631.32. The cost of moving this quantity of articles of food was, in 1869, \$185.84, and in 1879 was \$61.62, a difference of \$124.22. Thus, while the cost of transportation was largely reduced, the price of food was substantially unchanged.

Thus, the fact that the price of food has remained stationary in France has been con-

firmed by the experience in this country, and the probability is that, unless there be some extraordinary cause, the prices of food will continue to maintain their present average. The immense increase in the production of this country is met by the corresponding increase of consumption abroad and at home, which is rendered possible by the regular increase in wages, or the means m the hands of the people to purchase the food. This renders it almost certain that the policy adopted in the Continental States of Europe of taxing articles of food imported from America, thus diminishing the purchasing power of wages, will necessitate an immediate and compensating increase of wages. No people will ever submit to any reduction of the quantity of their food to which they have become accustomed.

The improvement of the working classes of Europe, consequent upon the introduction and application of steam machinery, is of itself a refutation of the theory that human life has been sacrificed by the avarice which more essential to the employer. Machinery has reduced the cost of production; has thereby increased consumption, and by increase of production and of labor. The increase of production and of labor. The increase of wages has increased the interest of labor in its product. With increased wages the workman is encouraged to improve his condition and that of his family by education and that of his family by education and by a general advancement in all things. In the general improvement of his class the differences in social ranks are gradully removed, and it leads up to a broader equalization of the rewards for industry, skill and frugality. The increase of wages consequent upon the increase of employment and in the suggested in the article from which we have quoted, that labor, being more essential than ever to capital, is gradually receiving, by the process of inevitable laws of compensation, a greater proportion of joint earnings of capital and labor, and this is shown in the reduction of the rates of interest in the world over. This fact is also shown in the figures we have quoted from Mr. Atkinson. The prices of certain quantities of certain articles of food in 1860 and in 1880 amounted in New York to within a few cents of the same sum. Owing to the reduction of the same articles was delivered in New York in 1879 for \$61.62, against \$185.84 in 1869. The difference, \$124, was that much additional for \$61.62, against \$185.84 in 1869. The difference, \$124, was that much additional compensation to the labor on the farm, so much additional to the share of the \$632 which fell to the farm, and so much less of \$25,000,000, divided into 250,000 shares of much additional to the share of the \$632
which fell to the farm, and so much less of
the \$185 which in 1869 was taken as the
share of the capital employed in transportato act as a Board of Directors. Jay Gould Cincinnati, Ohio, tion. Take any of the joint productions of takes 100 shares; Sidney Dillon, 100; Rus-

labor and capital and it will be found that the greater the employment of machinery the lower the cost of production; the lower the cost of production, the greater the demand for consumption; the greater the consumption, the greater the demand for labor, and the greater the wages of labor; and though the article produced may be sold to consumers at much less price than before, the profit on the increased production is so much greater that both capital and labor are more prosperous, and the share falling to labor is more equitably proportioned. There labor is more equitably proportioned. There may be exceptional cases, but this rule may be regarded as generally verified by facts.

Durability and Economy of Manganese Bronze.

A correspondent of the Engineer, Mr. P. W. Parsons, states that manganese bronze, made by him with the aid of ferro-manganese, showed excellent results when tested anisse, showed excement results when tested in presence of a representative of the British Admiralty. All bars, those of manganese bronze as well as those of gun metal, were I inch thick and I2 inches between supports. With a steady pressure applied in the center the gun-metal bars broke with 2912 pounds, but it required 6048 pounds to break the manganese bronze bars, and they sustained nearly one ton before any permanent set could be detected. Steel bars subsequently tested took a permanent set with about 10 cwt., though the ultimate strength was about the same as the manganese bronze. The same bars subjected to impact gave the fol-lowing results, the distance between supports being the same, viz., 12 inches, and the weight 50 pounds dropped on the center of the bar from a hight of 5 feet. The gun-metal bars broke with seven to eight blows, the manganese bronze bars sustained from thirteen to seventeen blows, while the steel bars broke with only three. The ultimate bars broke with only three. The ultimate bend of the manganese bronze bars was in each case in excess of the gun-metal, and about four times that of the steel. These tests, says Mr. Parsons, determined the Admiralty to adopt the manganese bronze for the propellers of the Colossus, the cast-ings of which are now nearly completed, and it has also been extensively adopted for preit has also been extensively adopted for pro-pellers in the mercantile marine, as well as in various parts of the engines and for main various parts of the engines and for ma-chinery generally. The advantages which manganese bronze possesses over steel are as follows: First, the blades can be made very considerably thinner, the surface is beautifully smooth, and the form of the blade is preserved true to its theoretical shape, whereas in steel the surface is rough shape, whereas in steel the surface is rough and the form is always distorted by the annealing process they have to undergo. These advantages certainly increase the speed of the vessel; but another important point is their durability and ultimate economy. The life of a steel blade does not average more than three years. Some must be replaced in less than two; this is in consequence of the pitting and corrosion to which they are subject, whereas the manganese bronze blades are in this respect pracganese bronze blades are in this respect prac-tically indestructible. The cost of the bronze blades is about double that of steel, so when at the end of three years the steel has to be renewed the cost would be the same as if the bronze blades had been adopted in the first instance, but every three years after this there is the additional cost of a new set of steel blades; whereas if the bronze blades are used there is none during the life of the vessel, and when the time arrives for the vessel to be broken up the bronze will always fetch 7d. or 8d. per pound, while the steel is practically valueless.

The Mexican Oriental Interoceanic and International Railroad Company.

Articles of association of the Mexican Oriental Interoceanic and International Railroad Company have been received by the Secretary of State, at Albany, and have been laid before the Governor for approval. The articles state that on June 7, 1881, a contract was entered into by and between the Republic of Mexico and the International Railway Improvement Company granting the Republic of Mexico and the International Railway Improvement Company, granting certain rights and powers, with a subsidy, in aid of the construction and operation of a railroad and telegraphic branches within the republic, and the contract provided that said rights and powers could be transferred to one or more companies which might be organized for that purpose. The International and application of steam machinery, is of itself a refutation of the theory that human life has been sacrificed by the avarice which substitutes steam and iron for human labor.

Instead of placing the workman more in the labor. Instead of placing the workman more in the labor. Instead of placing the workman more in the labor. Instead of placing the workman more in the labor. power of the employer, it has made him the construction of the same for other companies or individuals in the State of New York, having expressly authorized the incor-

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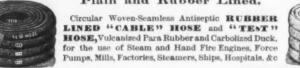


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sell Sage, 100; Thomas T. Dillon, 100; tion: "It seems not impossible that within a

Recent Consular Reports on American Commerce and Trade.

Below are given extracts and statements

from recent consular reports.

Consul Robinson, of Tamatave, Madagascar, writes: "American trade is still so nearly restricted here to brown cotton and kerosene oil that I must report what I have reported so many times, and written to so many merchants and manufacturers in response to their inquiries, i. e., that it is not because there is not demand for other American productions, but simply because there are the United States. I am being asked almost continually, and by nearly all classes, includcilities for getting any other goods from ing mechanics, agriculturists, trades and even the officers of the government up to the Prime Minister, if I can put them in the way to get such and such articles from America, and I am forced to reiterate the same reply to all: 'Our merchants at present engaged in the Madagascar trade do not wish to deal in other lines of goods than those they now handle, and they will not incumber their vessels with goods for other

Consul Fish, of Tunis, says: "The few American goods that find their way to this market are shipped first to some European port, and thence transshipped to Tunis in French or Italian vessels. A good deal of American petroleum is finding its way to this market, and the trade in this article is likely to become much more impor-tant in the near future if it is wisely man-aged. I have not only a willingness, but a desire, to encourage the introduction of our style of goods, but as there is no direct communication by ships between the ports of Tunis and those of the United States, merchants are unwilling to run the risk of com peting with European goods that now hold the market. Could a direct line of American steamers be established between the United States and the ports of Tunis, it is other states and the ports of Tunis, it is believed that American cotton goods and other manufactures could be profitably introduced here. Many of the articles known as 'Yankee notions' would find ready sale here, and the superiority of many of our manufactured goods over the cheap and inferior European articles would be sure to win them a place in every well regulated. win them a place in every well regulated

Commenting on the importation of bonded goods into Mexico, Consul Sutton, of Mata-moros, says that for the year ending September 30, 1380, the direct importations at Brazos were over 57 per cent. of the whole bonded trade of the United States to Mexico. The main cause of this increase of direct importations and decrease in imports from New Orleans, New York and Galveston," says Mr. Sutton, "is the high freight rates charged by the only steamship line running from the Brazos to those ports. While this is the main reason, there is also occasionally some delay in getting goods through New orleans and New York custom houses, and in the latter, it is said, small quantities are sometimes abstracted. If the goods be open for examination the interior tin or zinc case is cut, and the insurance thereby affected if is cut, and the insurance thereby affected if the goods suffer any damage in their transit from the port where inspected to the point of final destination. These disadvantages are trifling when compared with the facility and promptness with which orders could be filled in the United States, and whenever prices and freight rates in and from New Verk and New Orders are possibly advan-York and New Orleans are nearly as advan-tageous as those in and from Liverpool and Bordeaux, this trade will change back to the United States."
Consul Willard, of Guaymas, Mexico, re-

consul Willard, of Guaymas, Mexico, reports that "during the past six months \$430 tons of machinery, general merchandise and railroad supplies, besides 1,850,220 feet of lumber, have been received at this port on American vessels, valued at \$464,324, of which \$111,800 worth and about 1,000,000 feet of lumber were for the railroad company. The consular district produces no lumber, and the supply is received entirely from the United States."

from the United States."

Discussing the differences between European and American packing, Mr. Logan,
United States Minister resident in Central
America, indulges in the following pointed
observations: "All European merchants excel those of the United States in the item of
packing, but those of France have almost made it a fine art. They employ regular pack-ers in all establishments of any pretension, who have learned the business as a trade. The have learned she business as a trade. The box is made of a peculiar white wood, which is close grained, exceedingly tough and very difficult to split. These features enable them to make boards of the box about onethem to make boards of the box about one-half as thick as the American pine box, and about one-half the weight, or even less. The box is put together with a round wrought wire nail, which is very difficult to draw out of the wood. Goods are packed in sealed tin cases, which are put inside the wooden box. This latter is then securely banded with iron straps. This box weighing greatly less than the American box, an important consideration in the matter of freight bills, will stand a degree of pitching and throwing about which would tear the pine box of American merchants to pieces. The pine is not a suitable wood for boxing. pine box of American merchants to pieces. The pine is not a suitable wood for boxing. It has no toughness, will not hold a nail and easily splits. To make the matter worse, our merchants use a cast-iron nail, easily broken, and more easily drawn out of the wood by reason of the loss texture of the latter. To cap the whole business, the strap of wood or iron is often dispensed with by the American merchant, and goods are sent out in a heavy pine box, lossely nailed together, to stand the racket of steamships, launches, railroads and the primitive wagon roads of mountainous countries like Central America. The inevitable result of it is that the loss by breakage and stealage in the American box is so great that

tributes the following interesting informa- capacity.

Amos L. Hopkins, 100; Thomas T. Eckert, 100; Norvin Green, 100; Thomas W. Pearsall, 100; General U. S. Grant, 100; and Francis De Gress, 100. something to alleviate the general distress here, and the proposed measures are numer-ous and varied. One proposal is the aboli-tion of what are called the differential flag daties, and, at the same time, a material reduction in the tariff duties.
The differential flag duties, as in force to-day, are a very material and striking discrimination in favor of the Spanish flag.
The removal of this, establishing a uniform duty for the goods of all nations, in what-ever bottoms they may be imported, will at once put an end to the European monopoly by placing American goods on the same basis as others. In order to complete and perfect the reform the United States would have to remove the discrimination now made against goods imported there in Spanish bottoms, and as there would be a constant stream of Spanish vessels to the United States, the low rates of freight, which they are in the habit of charging, would be enjoyed by the American exporter, as they are now by the European."

Referring to the same subject, Consul-

General Hall, of Havana, says: "Cuba has become commercially a-dependency of the United States, while still remaining a political dependency of Spain; the economical necessities of the island attract her toward the United States, while the origin, language, customs, religion and traditions of her people enforce her political ties toward Spain. This conflict between material necessity and sentiment is probably the principal cause of the distress now prevailing in Cuba, and it requires but little foresight to perceive that this conflict must terminate either in her complete commercial assimilation with the United States or in the ruin of her material interests and disappearance of her civilization.

Steel Rails on the Railroads of the United States.

The following table from the last volume of "Poor's Manual of the Railroads of the United States" is of much interest, as it gives, for the first time, the number of miles of railroads laid with steel rails in this country, showing exactly in what portions of the United States they have been most extensively laid: Length Miles

	States and Territories.	of Line.	Sidings,	Steel Rails.
	Maine			
	Maine	1,059.87	142.06	298.08
	New Hampshire	876.10	154.38	107.45
	Vermont	836.16	115.73	198.92
1	Massachusetts	2,128.00	1,367.24	1,382.73
	Rhode Island	153.16	69.35	80,00
	Connecticut	900.32	311.56	611.80
	New England	5,959.70	2,100.31	2,678.98
1	New York	5.975.96	4,306.69	2.783.38
1	New Jersey	1,687.67	944.20	1,036.03
I	Pennsylvania	6,081.36	4,232.68	4,540,25
I	Delaware	222.82	18.00	9.20
ì	Maryland	8,072.12	579-73	221.00
1	West Virginia	295.40	37.31	76.00
ı	Middle States	15.335-39	10,119.21	8,665.95
l	Virginia	2,028,88	220,27	899.53
1	North Carolina	1,460.14	80.91	105.66
1	South Carolina	1,221.05	88.62	175.85
ı	Georgia	2,616.60	149.23	398.75
I	Florida	454.10	20.23	390.73
۱	Alabama	2,086,26	149.60	337.49
ı	Mississippi	1,420.93		
ł		1,231.48	27.98	1.00
۱	Louisiana		131.23	631 00
ı	Tennessee	1,476.80	108.41	354.92
ı	Kentucky	1,966.16	223.66	577-44
l	Southern States	15,912.31	1,200.14	3,526.63
l	Ohio	7,406.31	1.968.07	1,419.30
l	Michigan	3,607.18	1,127.84	1,209.94
ı	Indiana	5,069,33	758.25	2,120.24
ı	Illinois	9,383.20	1,907.02	4.984.49
1	Wisconsin	5.034.21	490.43	1,758.20
I	Minnesota	4,025.58	214.66	673.17
١	Dakota Territory	209.11		300.11
I		2,852.00	5.50 226.98	
1	Nobaraka	2,782.05		698.44
1	Nebraska		300.00	895.00
I	Kansas	1,844.93	112.69	358.5E
Į	Missouri	3,875.32	558.44	1,990.12
١	Arkansas	591.91	28.71	1.00
ı	Texas	3,219.06	182.16	401.40
١	Colorado	684.50	42.30	307.20
1	Western and South-			
J	western States	50,585.29	7.924.05	17,026.13
1	New Mexico Terri-			
J	tory	664.70	50.00	
ı	Arizona Territory	384.00	30.00	
Ì	Utah Territory	815.05	80,00	
J	Nevada	322.70	54.00	143.00
1	California	2,828,00	349.89	1,638.98
J	Oregon	588.36	50 00	
ı	Washington Territory	274.00	20.00	*** *
J	Pacific States	5.876.81	633.89	1,781.98
j		PITULATIO		-1,01.90
J	New England	5,959.70	2,100.31	2 628 -9
J	Middle States		10,119.21	2,678.98
J	Southern States	15.335.39		8,665.95
1		15,912.31	1,200,14	3,526.63
J	Western States	50,585.29	9.724.05 633.80	17,026.12
4	B-204-1111-1	3,070,01	044.00	1.701.00

Total United States 93,669.50 21,977.60 33,679.66 The consumption of steel rails, from their first introduction to the end of 1880, has, ac-cording to Mr. Swank's statistics, been as follows :

Year.	Produced.	Imported
1867	2,550	
1868	7,225	
186q	9,650	destin
1870	34,000	
871	38,250	50,701
872	94,070	149.786
1873	129,015	159.571
874	144,944	100,515
875	290,863	10, 316
1876	412,461	
877	432,169	35
878	559,795	10
879	693,113	25,057
(88a*	967.592	275,000
	0-6-6	
* Approximately,	3,816,697	776,991

stealage in the American box is so great that a little experience satisfies the foreign merchant that he cannot buy goods in American markets."

The following the following the following the next few years. With lower prices, our steel mills would comman a large market for a number of years. Consul Roosevelt, of Matanzas, Cuba, con- come, even with their present enormo

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Metallurgical Review.

New York, Thursday, July 28, 1881.

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The Legislature at Albany, now happily adjourned, left a small equivalent for the expense and vexation which attended the longest session on record. The passage of the joint resolutions to amend the constitution so as to abolish tolls on the canals, was perhaps the most important act. The partial revision of the tax laws carried with it the exemption from taxation, for fifteen years, of American vessels engaged in the foreign trade, but the only new subjects for taxation are collateral inheritances and mortgage bonds. The bills taxing brokers' sales, sav- That the new Canadian tariff has realized given the subject serious attention.

bill providing for an increased water supply. The bills requiring a registration of plumbers, inspection of immigrants, abolishing compulsory pilotage at Hell Gate and impos-ing penalties for the adulteration of food and drugs, which became law, comprise commendable features.

The Commercial Development of the Dominion.

Statistics of Canadian commerce for the fiscal year ended with June last, show that for the first time in the history of the Dominion the exports are in excess of the imports. During that year, the exports reached a total of \$87,911,458, while the imports were only \$86,489,747. The greatest development of Canadian trade was reached in the years 1873 and 1874, when the exports and imports compared as follows:

Exports. 89,789,922 89,351,928 128,213,582 Since then Canadian trade has shown an irregular falling off, but 1880, as compared with 1879, shows a gain of \$16,500,000 exports, and a little over \$1,000,000 imports. The following table shows the trade of the Dominion with each country since 1875:

Totals	Great Britain United States France Germany Spain Forlugal Italy Holland Belgium Newfoundland Bertish West Indies Spainh West Indies Franch West Indies Cother West Indies South Americs South Americs Switzerland Switzerland Switzerland Switzerland South Africa South Africa South Africa	Countries.
\$197,505,636	\$00,379,000 \$0,717,803 \$1,154,005 \$1,154,005 \$1,007,00 \$10,10	1875.
\$175,600,653	\$3,474,300 75,986,900 75,986,900 43,34,812 608,355 445,451 494,195 199,195 199,195 199,195 199,195 197,480 2075,475 2075,475 2075,750 2075	1876.
\$172,175,876	\$81.199.708 77.087.914 77.087.914 77.005.914 77.005.914 744.918 744.918 744.918 744.918 744.918 744.918 744.918 744.918 744.918 744.918 744.918 745.718 745.718 745.718 745.718 745.718 745.718 745.718 745.718	1877.
\$170.022.244	\$53,372,719 73.676,627 1,754,334 521,566 521,566 521,566 52,57 14,50,411 265,57 14,50,411 265,57 14,50,411 265,57 14,50,611 265,60 666,	1878.
\$141.839.863	\$57,288,848 \$50,944,700 2,447,006 2,447,006 3,644,65 161,238 210,461 2,280,671 3,10,567 1,31,407 1,31,	1879.
Stan for Boy	\$80,307,466 6a,696,87 1,496,670 1,530,628 207,445 207,445 207,457 20	1880.

From this it appears that the trade of Canada with the United States has suffered more heavily than that with Great Britain. In 1876 nearly one-half the imports into the Dominion for consumption were from the United States, exceeding by \$5,235,773 the imports from Great Britain. In 1877 the imports for consumption from the United States exceeded one-half the total, and in 1878 we exported thither to the value of \$48,631,739, or considerably over one-half the total Canadian import, and \$11,200,559 in excess of the importations from Great Britain. This relation was maintained through 1879, but during 1880 the imports from this country entered for consumption declined to 41 per cent. of the total, and in value fell \$14,392,271 under those from Great Britain.

The development of the export trade of the Dominion shows that there is some business enterprise in the Provinces, though not enough to maintain a steady gain in this branch of her foreign trade. The value of the total exports of the Dominion since 1875 has been as follows :

Totals.	Great Britain United States France Germany Span Portugal Italy Holland Belgium Newfoundland Belgium Heliah West Indies Spanish West Indies Spanish West Indies Spanish West Indies Spanish Holland Other West Indies China and Japan Australia South Afraca Cher Countries	To.
\$77,886,979	\$40.03.000 29.01.083 211.767 7.300	1875.
\$80,966,435	\$40,733,477 31,933,459 31,933,459 125,768 125,768 125,768 125,768 125,768 125,768 125,768 125,768 125,768 125,769 125,	1876.
\$75,875,393	\$41.557,465 25,775,465 25,775,465 24,334 24,334 24,334 24,346 24,346 24,346 24,346 24,346 24,346 24,346 25,466 27,	1877.
\$79,323,667	\$4,5011,50 25,244,50 25,244,50 104,334 47,850 104,386 104,386 153,750 40,096 109,501,44 1,050,607 104,318 10	1878.
10!	\$36.204.718 27,165.604 27,165.604 27,165.604 27,165.604 27,165.604 27,165.604 27,165.604 27,164.472	1879.
66	\$45,5846,662 33,349,469 812,823 82,273 86,787 165,885 165,88	1880.

mental in securing its adoption, does not be the best features of all, is submitted for \$3.25 to \$3.50 for freight from the mines to statistics. Sir Leonard Tilly, in his budget ered with cotton and bound into bundles, are speech at the last session of the Dominion Parliament, said: "In 1874-5 the importa-"tions from Great Britain were, in round States, \$50,000,000; from other countries, \$8,000,000; or, 50 per cent. from Great Britain, 42 per cent. from the United States and 8 per cent. other countries. In 1875-6 'the figures were: Great Britain,\$40,000,000, or 43 per cent.; United States, \$46,000,000, or 48 per cent., and \$8,000,000, or 9 per cent. from other countries: in 1876-7: Great Britain, \$30,000,000; United States, \$51,000,000; other countries, \$5,000,000; or 41 per cent. from Great Britain, 53 per cent. from the United States and 5 per cent. from other countries; in 1877-8: From Great Britain, \$37,000,000; United States, \$46,-000,000; other countries, \$5,000,000; or a from the United States and 5 from other countries. In 1878-9 the amount from Great Britain was \$30,000,000, from the United States \$43,000,000, for the great bulk of the imports that were brought into the country in February, 1879, came from the United States, such as gray cottons, re-' fined sugars and a number of other articles. "In that year we imported from other coun tries \$5,000,000, and the percentage for that year was 38 per cent. from Great Britain, 54 per cent. from the United States, and 6 per cent. from other countries. In 1879-80 we imported from Great Britain \$34,000, 'ooo; from the United States \$29,000,000, and from other countries, \$7,000,000, or a percentage of 48 from Great Britain, 40 from the United States and 11 from other countries : or, in other words, for the first time since 1874 the importations from England were in excess of those from the United 'States." What the people of Canada gain by changing the relative position of Great Britain and the United States as regards the percentage of exports furnished by them respectively, does not appear, but perhaps they see it. If the actual figures could be given, it might not be so evident, for there is certainly a very heavy border trade of which the official statistics take no account. The Canadian government is much ess able to protect its trade against smuggling than we were at the time when it was cheaper to buy in Canada than in this coun-For many years there was an enornous business in smuggling across the borler into this country, and now that the conlitions are changed it is quite natural that the tide should set back again. The signifi-cant remark of one of our New York merhants, to the effect that while there was ot much demand on Canadian account the order trade is very heavy, tells the story. It also shows why we cannot afford to give Canada any better terms in the matter of duties than we are prepared to offer Great Britain. Such a frontier as that between the United States and Canada cannot be adequately protected against smuggling, especially on the Canadian side.

Subterranean Telegraphs.

The demand for underground telegraph wires that followed the sleet storm of last winter has apparently subsided. "Out of sight, out of mind." The iron network, no longer dangling in the faces of our citizens, has ceased to occupy their thoughts. Yet the telephone alarm fails of response, and messengers do not always answer signals from the district telegraph instrument. The irate subscriber charges all to inattention at "the office" and wonders why he should be the particular mark for neglect. But patient, long suffering superintendents who, day after day, with smiling faces ring changes of "explanations," know that the straining of every nerve of their employees cannot bring about anything like satisfactory results. The slender iron conductor once beyond the office roof must thread its way over an almost trackless waste until it finally drops to the subscriber's instrument. This field of roofs is apparently everybody's land. A dozen companies build and rebuild daily over and 'under one another's wires. Interruntions and annovances are endless and without remedy. Owners of buildings sometimes charge damages, sometimes rental for occupancy, and, again, refuse all offers, and when swept off by determined landlords telegraph linemen light, like flies, on the nearest quiet spot. It must be understood that the telegraph companies have absolutely no rights upon roofs. Each property owner in theory controls and has absolute ownership from the earth's center upward into \$2 unlimited space. Crossing a man's property a hundred feet in the air would very probably be found to be a trespass as much as though on the ground. Upon the roofs or over them the companies are, in general, squatters, liable to dispossession at the whim of the owner or tenant.

In erecting pole lines, the legal rights of companies are more settled, but they dislike the popular indignation thus aroused. The owner in front of whose door or window a pole is planted, very likely becomes an enemy of the company setting it. Rather than live on in this precarious fashion, one

Mr. Bell in 1875 estimated that it cost the Cleveland (England) blast furnaces about one-half as much per ton of pig fron for freight as it cost the Pennsylvania furnaces.

Both statements are correct. The figures upon the subject of underground telegraphy

appear from any evidence yet furnished by consideration: Conducting wires, well covsufficiently insulated from one another, provided their surroundings are dry. If protected by a good quality of gutta-percha, numbers, \$60,000,000; from the United insulation can be maintained if the conductors are constantly submerged. Subterranean lines are under neither of these conditions Cotton becomes saturated with moisture; and falls from the wire. This point may be met by winding copper wire with thoroughly dry cotton, and treating it with tar from which all ammonia has been extracted. period and form a good insulator. In English and American patents of different dates to build vaults-or, more properly, perpercentage of 41 from Great Britain, 53 haps, manholes-short distances apart, and connect them by conduits or channels. These conduits contain series of continuous earthenware pipes reaching from vault to vault. There is nothing expensive in the material, and ample provision may be made for future through by means of ropes laid in the pipes neglected, by pneumatic suction or propulsion; workmen stationed in each vault can thus manipulate the wires without disturbing the soil above. A greater number of ing in the least any other conductors of a

> in close proximity, is disturbance arising from induction or the influence which one charged conductor exerts upon another lying parallel and near. The result is that conversation on one wire can be heard on others if the conditions are as just stated. These troubles can be easily remedied. A thin metallic covering (as tinfoil) over the insulation of each conductor neutralizes inductive effect to a certain extent. As inductive action between parallel wires increases directly as their length, it is quite evident that in a group—say, of twenty wires—a change of relative position will serve to break it up in distances too great to be overcome by the metallic screen. As to practical results, we should say that twenty wires running parallel for a distance of 2000 feet, each surrounded by a thin envelope of metal, will not seriously interfere. Changing their relative positions in the flexible cable every quarter mile or thereabouts in some convenient vault is not a serious or difficult matter. By means of proper apparatus in the manholes the branching and crossing of the wires from the different cables is effected, wires withdrawn and replaced, wires divided into large or small groups, branched into buildings, and all the other necessary manipu lations accomplished. There are several patents which cover means for keeping the vaults dry, and others for keeping the conduits or tubes dry, without paying much attention to the manholes themselves. There also an elaborate and most useful method of keeping records and diagrams of the positions of the conductors, and of recording the position of each individual wire. This same patent also covers a means for marking each

group.

wire at every point at which it is accessible. At the present time the telephone companies are cut off from some territory which would be most valuable, simply because they find no way of getting wires into it without creating the greatest hostility. Poles are out of the question, even though the legal circumstances it seems to be wise to consider carefully the schemes presented for putting the wires conveniently under ground.

Freight on Lake Superior Ore.

The Bulletin of the American Iron and Steel Association copies our Editoral on English, French and American coke, ore, &c., but credits it to another journal, in which it was copied. Commenting on our figures of freight on Lake Superior ore the Bulletin ber of cases he has shown that it is dangersavs:

that contracts to carry ore from Escanaba to Cleveland have been made at \$\frac{1}{2}\tau_1\tau_2\tau_2\tau_3\tau_2\tau_2\tau_3\tau_2\tau_2\tau_3\tau_2\tau_3\tau_2\tau_3\tau_2\tau_3\tau_2\tau_3\tau_ Our statement was as follows :

It is well-nigh impossible to arrive at the cost of transportation on our ores. The transportation on Lake Superior ores to Pittsburgh will average on Late Superior ores to ritisourga will average \$5.50; to Cleveland, from \$2 to \$2.23 less than this. To Chicago the average will be \$2 to \$3. In the East the rate varies greatly, but we should judge that the average will not be less than \$2 a ton. Mr. Bell in 1875 estimated that it cost the Cleve-

would suppose that experiment and research given by the Trade Review and the Inter-Ocean cover only the rate from the docks in allowed; but in spite of this the nailers carwould be energetically promoted by the com-panies; but we cannot ascertain that such Chicago. Our figures include not only this, is the case. A few persons, however, have but the rates from the mines to the docks. demand was absurd on the face of it. Other The Add the Lake Superior rail freights and the mills are using the same American steel ings banks, &c., were defeated. So was the the expectations or promises of those instru- following plan, combining what we judge to Lake freights together, and our average of with the best results, and unless the men are

Cleveland, Ohio, will not be far out of the way.

The Negro as an Iron Worker and Miner.

In many sections of the South there has prevailed from time without mind an idea that the negro never could become a skilled gutta-percha grows friable, disintegrates ironworker. He had worked very success fully about furnaces, but in the skilled positions about the rolling mill—as a puddler, a heater or a roller-it was fully believed that he could not become a competent workman. This preparation will exist for an indefinite In this fact will be found one reason why before the war there were so few mills in the South, and one reason why they have not are full details for easily manipulating the increased more rapidly since. While this wires during original construction and for has been the prevalent and well-nigh future charges or repairs. It is proposed universal belief, it has not been shared by all Southern iron manufacturers. For some years a portion, at least, of the workmen at the Old Dominion and Tredegar Iron Works, at Richmond, Va., have been colored men, and as puddlers they have been especially efficient. Some years ago, during a strike at a mill in Pittsburgh, a number of use at the time of laying. Through these colored men were brought from Richmond pipes are drawn flexible cables perforated to Pittsburgh as puddlers, and unless a lengthwise, each perforation containing an change has been made very recently, the independent wire. The cables can be drawn puddling at this mill is still done by negroes. These experiments and their results, sucat time of building, or, if that has been cessful as they have been, have not been generally known in the South, and when some six months or more ago the Knoxville (Tenn.) Iron Works concluded to try negro labor, it was with some doubt as to the rewires can be placed within one foot square sult. To-day, we are assured, the mill in all than are accommodated by the largest pole of its departments is run entirely with line in the city. A single wire can be drawn negro labor—puddling, heating, rolling, out, repaired and replaced, without disturbwhite, but heaters, rollers, roughers, catchers, drag downs, puddlers, helpers, &c. are One great difficulty with telephone wires all colored. At the Atlanta (Ga.) mill a similar course has been pursued for about two months. The puddling is done by colored labor as well as it was done by white, and as soon as men are taught, the remainder of the work will be done by them. In every case, we are informed, the negro workmen are as efficient as the white

This movement, and what is likely to result from it, is of more than ordinary importance to the iron works of the country, and especially in the South. It having been demonstrated beyond the shadow of a doubt that negroes do make skilled workmen about the mills, it is not at all probable that the race will allow this opportunity for improving their condition to pass. The wages earned at boiling, heating and rolling will eem fabulous to men who have been working for 50 to 75 cents a day. All negroes will not make good workmen, nor will all white men, but there is no reason why the proportion of good workmen should not be as great in the one class as in the other. The colored race is teachable, imitative, physically strong, and accustomed to stand heat, and we have no doubt they will form an element in the labor question about our rolling mills that cannot be ignored.

As a miner, the negro has already entered into labor contests in the North. His value and efficiency has long been recognized in the South in the coal mines, and the wellnigh universal testimony is that, with the exception of superintendence, there is no part of the work, either of ore or coal mining, that they do not perform as well as the best. " As miners they are equal to the best Welsh and Cornish miners, the testimony of a Welsh mining captain at a Virginia ore mine. They are as faithful and steady workmen, if not more so in many cases, their only "sprees" being the week or two of the annual camp meeting. It has not only been in the South that the negro has made himself felt as a miner, but in the North also. Several bitter strikes in right of way could be obtained. Crossing coal mines have been ended by his presence we recall, as we write, cases at Pittsburgh. and the desperate struggle and riots, resulting in death, in the Hocking Valley. Some Illinois, and we believe some Michigan and Iowa, mines have employed negroes during strikes, and they are still retained. This question of the negro cannot be treated as the Chinese question has been. He is black, but not an alien. He is a native American. He may live very cheaply; but that is his privilege. He may take the place of another and work at less rates; but that is his right, if he chooses to do so, and in a numous to interfere with that right. The indi-The Cleveland Trade Review for June 11th cations are that the migration of labor from stated that "freight contracts have been entered into from Escanaba to Cleveland at \$1.50 to \$1.60 per ton. Freights from Marquette are quoted at \$2." The Chicago Inter-Ocean for July 12th states

> A case L'as been brought to our notice lately which a hows the utter inconsistency of the ironworks rs of this country in their views on the tariff, and the importation and use of foreign iron and steel. Some months ago a committee of mails served notice on judge the proprietors of a Weste, 'n nail mill that after a certain date they would refuse to use American steel. The demand was brought to the attention of the officers of the Amalgamated Association, who said in effect .that they would attend to it, and that such demand was outrageous and would not be

do the same. But the point is the absurd and 1880, out of 13,731,215 pounds of copper inconsistency of the workmen. They prate about their attachment to the tariff system, and insist that a manufacturer has no right to use old rails or scrap or pig iron from abroad, and yet they claim the right to force a manufacturer to use foreign steel. We partially defeated. However careful they wonder what the Pittsburgh steel workmen who are members of the Amalgamated Association, think of this attempt to injure their business ?

Ore per Ton of Iron.

In a recent issue, Iron has taken up the question of the quantity of ore required in various countries to make a ton of iron, and from an examination of statistics has reached the conclusion that the yield of the ores in the blast furnace in various countries compares as follows: England, 37 per France and Germany, 42 per cent., and Belgium, 58 per cent. The grade of the American ores is not given, but from the figures published by Mr. Jas. M. Swank, in his recent census report, we calculate it to be 52.1 per cent., the quantity of pig obtained from 7,256,684 tons of ore having been 3,781,021 net tons. While expressing some surprise at the high figure in the case of Belgium, our contemporary professes to have implicit faith in the correctness of its figures, and bases upon them a pathetic appeal to English ironmasters to pay more attention to closer smelting. Not being in possession of the data from which the figures given above are derived, we are unable been made. If they have been obtained by simply dividing the supply of iron orethe sum of production and importationsinto the quantity of pig made, a grave mistake has been made, as the amounts of ore used for fettling have been left out of the calculation entirely, and no account of the quantities used in open-hearth steel works has been taken. An omission of this kind would charge the blast furnaces of England with ore which had never gone to them, and the average yield would thus be depressed. So far as we are aware, there is no record of the ore used for fettling and steel making in England, but to illustrate our point we may show what difference it would make in the returns in this country. According to Mr Swank's statistics our rolling mills used 363,959 net tons, our steel works 7327 tons, and our crucible steel works 2128 tons. As the consumption of ore on the part of forges and bloomaries, amounting to 79,610 tons in this country, is insignificant in England, we they have no organization, and could not be will leave it out. By making such an error in the case of the United States we would arrive at 49.5 per cent., a difference of about 2.5 per cent. If the relative quantities of ore used for smelting and for fettling in both countries were the same, English blast furnaces would show a yield of 39.5 per cent., which is by no means so far behind France and Germany as the figures of Iron would tend to show. There is, bowever, another possible source of error which we would like to feel sure of before accepting the returns given. The reports of the mine inspectors probably give the quantities as delivered by the miners; but before being charged into the furnaces a considerable percentage of the ores, notably the Scotch blackbands, are roasted. We doubt whether due allowance has been made for this, and until we are assured that it has we shall look with suspicion upon the figures given by Iron and reject its conclusions.

Among the many interesting statistical data gathered by Messrs. H. V. & H. W. Poor, in their Manual of the railroads of this country for 1880, those relating to the equipment of the roads are of great value. From them we learn that at the close of last year there were 17,949 locomotives, 12,789 until now, but the ingenious Mr. Edison has passenger cars, 4786 baggage, mail and express cars, and 539,355 freight cars, there the sand only the pure magnetite, at the having been purchased during the year 865 rate of 100 tons per day per machine. We locomotives, 780 passenger cars, 267 baggage are very glad that the pauper labor of Spain cars, and 59,165 freight cars. We have no means of ascertaining the quantity of iron required in various forms to build this enormous addition to the rolling stock of the country, but with the figures before us can very well appreciate the effect which the enormous demand from that quarter has had upon the consumption of iron. According to all accounts the activity at the carshops indicates that this is going on unabated at the present time, and that the prospects of a continuance during the present year is assured. We know that the building of new lines of railway has even increased somewhat over last year, and there is little reason to doubt that for the five months before us in this year the railways-the greatest customers of the iron and steel trade-will buy as largely as they dld during 1880 and the first half of 1881.

A curious feature in the copper trade has been the occasional reimportation of Americompanies sell their surplus abroad at a price much lower than that asked in this country, the transaction is supposed to be accompanied by a guarantee on the part of the European buyers not to return any of it to this knowing how it terminates. country. Such reimportation is made possible and profitable by the fact that the American copper enters free of duty, and as the 26th inst., the jury rendered a verdict the cost of shipment from abroad is much for the plaintiff in the case of James W. less than the difference in the price paid Newell vs. Alanson W. Beard. This was a

exported, 4,593,129 came back to us, and while we have shipped abroad this year about 6,000,000 pounds, we have received to date about 300,000 pounds. The aim of the companies to hold prices here is thus may be to sell to responsible parties, the force of any agreement to abstain from reaping a profit by reimportation is considerably weakened when the metal goes into other hands.

"Fair Trade vs. Free Trade" is the latest phrase that our English friends are using to cheat themselves and excuse their lapse from the "broad principles" of free trade. "Retaliation" had a dash of spite in it, and seemed to imply that the high moral ground on which English free traders stood was slipping from them. There is no doubt that it is slipping, but it would not do to acknowledge it, and so the free traders or those who have once loudly proclaimed free trade doctrines, cheat themselves with the phrase fair trade." There are abundant signs that a political campaign for a modified protection is before the English people. Certain Conservative leaders are reported to have formed leagues, like our blessed grandmothers of Revolutionary fame, declaring they will neither eat, drink, nor wear anything that is raised in a State that does not have "fair trade" with England. The workingmen are earnestly agitating in favor of modified protection, and the Conserva-tives, being the "outs," are loudly criticisto say with confidence that an error has ing what they term the "absolute free trade" policy of the Liberals, who are the 'ins." There is no doubt the outcome of this will be some modification of the British fis-cal system. There is a growing belief in England that other countries will not give up what one of their writers termed taking an unmanly advantage of our adoption of "a large and noble principle; so they propose to give up in part the "large and noble principle.

> Sensational letters and telegrams from the anthracite coal district report that the Molly Maguire organizations are being recruited, and have lately perpetrated two cold-blooded murders. In both cases, however, the crime seems to have been inspired by motives which a society, however organized, would probably fail to recognize as warranting the death of the offenders. There are, no doubt, a good many young Thugs in the coal regions, but probably managed by any one. It is a great mistake to attribute every murder resulting from private animosity or jealousy to the Molly Maguires, as it encourages other crimes of a like nature. Murders and acts of violence should be dealt with as individual crimes, and not as the work of some mysterious or ganized power which can successfully set the law at defiance. When the impression once gains ground that the Mollies are organized and at work, every bad and unprincipled man with an enemy will consider it a good time to gratify his evil passions, in the hope that he will escape detection and the blame be laid upon some intangible and irresponsible organization whose ways are mysterious and past finding out.

> A good many very loose statements are being made about a magnetic separator invented by Mr. Edison. We regret to see that that gentleman has apparently abandoned the great problem of recovering lost gold from the tailings of our Western mills. and has now determined to find millions in the sands of Long Island. We are informed that this wonderful sand "contains 26 per cent, of the finest iron known." " Titanite iron," however, has balked everybody else modified his apparatus and now culls from and Algeria will thus be beaten by Edison, and expect at an early date to see all importations of foreign ore cease. It is fair to presume that the unreasonable mine owners of Lake Superior, who insist upon making all the money they can regardless of con sequences, will be speedily brought to terms. The Western furnaceman and the Long Island real estate holder will probably see in Edison the benefactor of his race

An interesting suit has been begun by a Philadelphia importer, who has been sued to recover \$9000 duties alleged to be due on iron ore imported into this country. The Custom House authorities claim that the ore was undervalued from 10 to 15 per cent. This the defendant denies, and has brought suit against Special Deputy Collector Isaac D. Balch for slander. This is turning the tables on the Custom House people with a vengeance, but we doubt if the suit for slander will stand, unless it can be shown. can copper from abroad. When the Lake as charged, that the deputy collector was in collusion with the appraisers, and was the responsible head of a conspiracy to persecute the complainant. The case is curious, however, and importers will be interested in

In the State Circuit Court, at Boston, on

government officers and the iron and steel importers, and this was made a test case. The trial lasted over four weeks. The case goes to the Supreme Court on minor points, but the question of fact is decided by the jury's verdict.

English advices indicate that there has lately been a considerable revival in the American demand for steel rails. The Ironmonger announces, on what it considers authoritative information, that large orders have lately been placed. The only specific information given is as follows: "During the past few days the Central Pacific Rail way have bought for autumnal delivery at San Francisco 30,000 tons of rails. Of this quantity Messrs. Wilson & Cammell, of the Dronfield Steel Works, near Sheffield, have secured 20,000 tons, and the remaining 10,000 tons have fallen to the share of the Moss Bay Hematite and Steel Company, Cumberland. The exact price paid has not transpired, but it is understood to range up to about £6. 10/ per ton, f. o. b., usual ports of shipment for the works in question." Why this order should have been sent abroad under the circumstances we are at a loss to understand. Nothing will be saved by importing the rails, if the price above given is correct, and we doubt if they will be had as promptly or cheaply as American mills would have furnished them.

Advices from Lima are to July 7th. The election for President in Chili took place on the 25th of June, and Dr. Domingo Santa Maria, the only candidate in the field, was quietly chosen. It was not yet known what terms of peace would be insisted upon under the new regime. The Chilians will not treat with Pierola, ex-President of Peru, and his chieftains are expected to die a natural death, if let alone. Calderon's government had been formally recognized by Mr. Christiancy, the Minister of the United States.

Negotiations are in progress looking to the establishment of Bessemer steel works at Sharon, Pa., but as yet nothing definite has been done beyond the appointment of a committee by the citizens of the place to consult with the owners of the Stewart furnaces, which are located at Sharon. It is understood that some money has been subscribed conditionally, but as yet the matter has taken no definite form.

Bradstreets' circular of the latest date gives a favorable account of the commercial situation. Advices from 37 prominent trade centers indicate considerable activity by comparison with the average observed during the dull season, and prospects for the fall are reported favorable.

English papers speak of a considerable raffic in explosive machines carried on between America and England. These diabolical contrivances are intended to give emphasis to the opinions of the Irish

The proposed world's fair in Boston is supposed to be in process of successful incubation. A favorable report from the com mittee in charge is expected soon.

OBITUARY.

Col. Milner W. Roberts.

Information was received at Pi hast week of the death at Rio Janeiro, Brazil, on the 14th of July, of Col. Milner W. Roberts, the eminent engineer, who has been for some ten years Chief Engineer of Pub-

Few men have been more closely identified with the growth of the industries of Pitts-burgh and Pennsylvania than Col. Roberts, and his death recalls the eminent worth of the dead engineer and his ability in his pro-fession. His death was not looked for, inasnuch as Col. Roberts was blessed with rugged ealth. It is reported that the cause of his death was typhoid fever.

Col. Roberts was 72 years of age, having been born in Philadelphia in 1809. His father was Secretary and Treasurer of the Canal Company, and in early life Colonel Roberts was engaged as engineer on the work. His next employment was as principal assistant engineer of the old Colum bia Railroad Company, and he made surveys of the Portage Railroad, by which canal boats were taken over the dropped into the canal not far from Hollidaysburg. After the completion of the Portage Railroad and the canal to Pittsburgh, Colonel Roberts was chosen engineer of the Monongahela Navigation Company, and the original surveys and works of that company were made under his direction and superwere made under his direction and supervision. During the administration of Gov-Porter he was appointed engineer on the Erie Extension of the Pennsylvania Canal. The canal from New Castle to Erie was completed under Col. Roberts' supervision. He was also in charge of the engineering department of the Cumberland Valley Railward and not long after chief engineer of partment of the Cumberland Valley Railroad, and not long after chief engineer of the Sunbury and Erie, now Philadelphia and Erie Railroad. His next important work was on the Allegheny Valley Railroad, of which he was chief engineer, and the surveys of which were made under his direction. He severed his connection with the He severed his connection with the company after the road had been built as far as Kittanning. Afterwards Col. Roberts took charge of the surveys in connection with the construction of the Ohio and Mississippi Railroad, also the Iron Mountain road, in Missouri.

ment of the Ohio by means of locks and dams and open shutes, similar to those intended to be placed in the Davis Island dam. He laid out the plans for the construction of the great St. Louis Bridge, and also made most of the surveys for the Northern Pacific Railway. His last employment in this country was as chief engineer of the latter road. It is a quarter of a century since Col. Roberts paid his first visit to South America and became interested in the public works in that country, and was given an important position in connection with Brazilian railways. After his return he remained some years in this country engaged in the practice of his profession. A few years since he was appointed chief engineer of the public works

In personal attributes Col. Roberts was manners, and in character the personifica-tion of integrity and honesty. At the time of leaving for Brazil he was president of the his indesatigable industry would not permit him to relinquish any of his labors, even after passing his three score years and ten.

William S. Hudson.

William S. Hudson, one of the most emi nent locomotive engineers and inventors in the country, died on Wednesday night at his residence at Haledon, near Paterson, in the seventy-second year of his age. He was a native of Derbyshire, England, and served his time as an apprentice to Robert Stephenson, the builder of the celebrated locomotive Rocket, which established the success of the steam railroad. Coming to this country soon after attaining his majority, Mr. Hud son was early employed to begin the manu facture of locomotives at the Auburn State Prison, in New York; but the project was a failure, from the difficulty in securing and keeping the necessary skilled labor. He was then appointed master mechanic on the Attica and Buffalo Railroad, subsequently merged into the New York Central. From there Mr. Hudson went to Paterson, to sume the position of Superintendent of the Rogers Locomotive Works, which he has held since 1852. For the last year and a half he has been mostly confined to his home with a complicated illness, but his position has never been filled at the works, save temporarily. While in charge of the mechanical department of this establishment Mr Hudson has made a great many improve-ments in locomotive construction, some of which have been patented, but most have not, while all have come into general use in the construction of engines. Some of his more notable improvements were in the building of double-ender engines with double sets of driving wheels; a balanced swing truck to enable engines to turn curves safely; steel fire-boxes; cast-iron instead of wrought-iron thimbles to flues in boilers to prevent leakage, besides improvements in connection with the crown sheets of boilers, grate-bars, ash-pans, piston movements, safety valves, and scores of others. One of his great aims was always to economize in the cost of generating and in the use of steam, he estimating that scarcely half the power of the steam generated was utilized, and that here lay the great field of inventors. He was very modest and retiring in disposition, and hence but little known except in his profession, but in that he was respected wherever the locomotive is known, and was esteemed as standing in the very front rank. He was a prominent Royal Arch Mason.

M. W. Warne.

Col. M. W. Warne, an old and respected resident of St. Louis, died on the 21st inst., at Lawrence, Kan., where he had been stationed for some time in the management of the Southwestern Barbed Wire Fence Company. Col. Warne was borne at New Bruns-wick, N. J., on December 7, 1810, and at the age of 21 years removed to New York city and entered the hardware trade, which was the business of his father before him, and in which he had then served an appren ticeship of nine years. After two years in New York he began business on his own ac-He was o ount in the cedar-ware trade. pecially fortunate, and accumulated considerable wealth, but indorsements of notes ruined him and sent him adrift. Thus situated, he concluded to go West and begin again. On arriving in St. Louis, in 1846, he commenced work at his trade, and after having amassed some money, he engaged with Henry L. Joy in the manufacture of woodenware by machinery at Quincy, Ill., at the same time carrying on a branch business in St. Louis. Just as his fortunes were being repaired the factory at Quincy was burned, and as the proprietors had failed to insure it, was a total loss. Shortly afterward his St. Louis house was swept away by the great conflagration of 1849. This house was partially insured, and on the small amount received from the insurance companies Col. Warne entered into partnership with William H. Merritt, with whom he continued in successful business for seven years, when Mr. Merritt sold out his interest to E. L. Cheever, who lost his life Feb. 5, 1857, on the ill-fated steamer Colonel Crossman. Capt. Joshua Cheever then took his brother's interest and the firm name remained unchanged until Mortimer N. Burchard was admitted, when the firm became Warne, Cheever & Co. Mr. Bur-chard became his son-in-law. The firm name was afterward changed to Cheever, Burchard & Co., who were succeeded by the present firm of Semple, Valle & Burchard. Col. Warne was a just, upright, generous man, greatly beloved by all who knew him.

The Irondale Case.—The District Court abroad and that realized here, the temptation to make money by placing it in this

suit to recover \$2200 paid under protest as
duty on a consignment of Swedish iron

He was appointed by the government to take charge of the improvements of the for the hearing of the famous Irondale case,

this mill were inferior workmen they could market appears to be too great. In 1879 which the Collector of that port classified Ohio River, and made some very important which has attracted so much attention, and and appraised as steel. The matter has been in dispute some time beween the topography of that stream and its tributaries. He first recommended the improves is not worth to-day over \$40,000, yet there is not worth to-day over \$40,000, yet there is over \$100,000 involved in the case.

The Catalan Forge in Europe.

In a lecture before the Society of Arts, Prof. A. K. Huntington describes iron mak-ing in the Catalan forge, as practiced in Spain and in the South of France, in the folowing manner :

The ore is crushed by the hammer, and divided by sifting into lumps ("mine") and very coarse powder ("greillade"). The furnace being still red hot from the last operation, it is filled with charcoal nearly to the tuyere; the hearth is then divided at a point about two-thirds distance from the tuvere appointed chief engineer of the public works about two-thirds distance from the thyere of Brazil, receiving the appointment from the two parts by a broad shovel; on the the emperor, Dom Pedro, at a salary of blast side a further quantity of charcoal is \$25,000 per year, and this position he held at the time of his death. In personal attributes Col. Roberts was to fill that part of the furnace; on this is retiring in disposition and unassuming in manners, and in character the personification of integrity and honesty. At the time of logical parts of Parts of the whole is in good order, jets of blue flame at once issue from the uncovered por-United States Society of Civil Engineers and was honorary member of a number of similar associations. He died at a ripe age, in the full possession of his rare faculties and while still in professional harness, for the maximum usually employed. During the whole of the process, at short intervals, "greillade" and charcoal are added, and well moistened with water, to prevent too rapid combustion. After about two hours from the commencement, the wall of "mine," i. e., ore in lumps, is pushed well forward under the tuyere, and more "mine" is thrown into the space thus made; this part of the process is also subsequently repeated at intervals, until sufficient has been added to form a lump of iron or masse of the required size. From time to time slag is removed by opening the tap hole. At the completion of the process, a mass of metal is obtained, weighing about 3 cwt., which invariably consists partly of soft iron, and

partly of steely iron and steel. We have seen that in the one part of the furnace only charcoal and "greillade" are introduced, and in the other only lumps of That the ore should be in lumps at that part is a very important point, for in this way the hot reducing gas, carbonic oxide, generated by the action of the blast on the charcoal, is able to pass freely through the mass of the ore, the effect of which is that the water of hydration and the moisture are first driven out by the heat, and then the ore having become easily permeable, the carbonic oxide reduces it to metallic fron. There are, however, several stages in this reduction, magnetic oxide being first formed; and protoxide is next formed before metallic iron is obtained. At the same time that these reactions are going on, the ore has become impregnated with carbon, derived from the decomposition of the gases with which it is charged. That this would be the case, the experiments of Mr. Lowthian Bell and others can leave no manner of doubt. and others can leave no manner of doubt.
On the tuyere side, where are placed
the charcoal and "greillade," the latter,
as the charcoal is burnt away descends
rapidly, and, to a considerable extent, doubtless, escapes reduction, for the arrangement of the blast is such that most of the reducing gas is projected on to the lumps of ore and does not pass up through that portion of the furnace occupied by the char-coal and "greillade," which, besides, are constantly damped. This "greillade" is much richer in silica than the larger pieces, from which it results that the quantity of slag will vary with the "greillade" added. very rich in oxide of iron It is always very rich in oxide of iron. Now, what happens in this process appears to be this: Carburized iron is produced by the gradual reduction and fusion of the lumps of ore, and this, coming in contact at the bottom of the furnace with slag, very rich in oxide of iron, the carbon of the one combines with the oxygen of the other, and the result is that iron containing more or less carbon is produced, according as much or little oxide was present.

The obvious conclusion would be that the less there was of "greillade" present the more steely would be the iron; in practice this is found to be the case. This circumstance would naturally suggest the total suppression of the "greillade, " when it desired to produce steel. This would, however, be impracticable, for it is necessary hat some of the oxide of iron should rema unreduced in order to flux off the which occurs in considerable quantity in the ore. In the blast furnace this difficulty is got over by employing lime; but lime at the mperature of the Catalan Furnace would not produce a sufficiently liquid slag.

All that can be done, then, is to employ All that can be done, then, is to employ every available means to prevent decarburization. Accordingly, we find that when steel is required, in addition to using less "greillade," the slag is tapped out more frequently, so that the lump of iron, as it forms, may remain as little time as possible in contact with it. The bank of ore is exposed for a longer time to the reducing and carburizing gases, and is pushed gently toward the tuvere so as not to become decarburized by the air, which has not had time to combine with the carbon of the charcoal. Lastly, manganese should be present. It is found that the presence of manganese has a very important influence, which is probably due to its power to replace iron in the slag. A slag containing manganese is more liquid than if it contained iron alone, and, according to François, has not the same and, according to rançois, has not the same tendency to cause decarburization at the temperature of this process. In order, then, that steel may be produced by this process, every precaution is taken to cause as much carburization as possible, the unavoidable presence of oxide of iron in the slag, and the low temperature, effectually preventing the formation of cost iron—the preventing the formation of cast iron-the former, indeed, making it very difficult, as we have seen, to obtain steel. It might be said, why not increase the temperature, so as to obtain a liquid slag without using oxide of iron ! If the temperature were increased, cast iron, instead of steel, would be produced; in fact, that is exactly how cast iron first came to be obtained in blast fur

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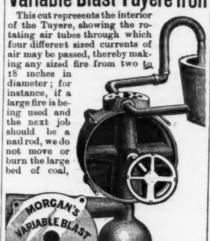


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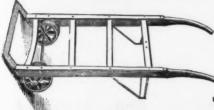
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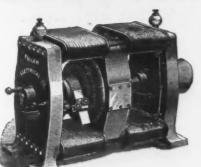
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INDUSTRIAL ITEMS.

VERMONT.

The vein of iron ore recently discovered in the eastern part of St. Albans is being worked with considerable success. Of the ore already taken out a quantity has been sent to the Pittsford Furnace. Having reached a depth where pumps, machinery for raising the ore and other apparatus are necessary, Boston parties are expected to develop the property. develop the property.

MASSACHUSETTS.

The buildings of the American Screw Company in Taunton, which have been idle since 1873, when the machinery was transferred to Providence, have at last changed hands, with all the real estate connected therewith, and will be at once utilized as a track and button factory. The purchasers tack and button factory. The purchasers are Anthony & Cushman, who will remove are Anthony & Cushman, who will remove their 55 machines from their tack factory at the Weir and add 50 more to them, thus nearly doubling their capacity, which will give employment to about 100 persons. In the second story H. L. Cushman & Co. will place 25 of their new button machines, which will give employment to about 30 persons. The work of fitting the buildings for their new occupants has already begun, and they will be shingled and put in good order at once. The buildings have a large quantity of shafting and piping, a 75-horse-power Corliss engine, and a 30-horse-power turbine water wheel, all of which will be attilized in the new business. This valuable property has been held at \$60,000 for nearly property has been held at \$60,000 for nearly 10 years, and has been assessed for \$55,000. It is understood, however, that the valuation It is understood, however, that the valuation has been reduced about one-half this year, and the sale is based on the assessors' figures. The old tack factory at the Weir is offered for sale, or will be leased, with the engine and shafting. Taunton has long been a center for the manufacture of tacks. Albert Field commenced in 1827 with one machine, and the Taunton Tack Company in 1869. and the Taunton Tack Company in 1852, and when they removed from Union street to their present works had 23 tack and nail to their present works had 23 tack and nail machines. D. B. Cushman commenced work when a boy with Albert Field, and was superintendent of the factory 21 years, until 1861. E. S. Caswell commenced work with Mr. Field in 1830, and Otis Allen in 1831. These three are veterans in the business. The Albert Field Tack Company has contack and nail-putting machines. 299 tack and nail-cutting machines, besides a number of wire nail and eyelet machines.

The Taunton Tack Company have 80 machines, besides their rivet machines. Anthony & Cushman have 55 machines, L. A. Rounds 28, and Caswell, Converse & Co. 24, making a total of 486 machines in Taunton, which will be increased to 536 when Anthony & Cushman's new factory is in full operation. Dunbar, Hobart & Whidden, of South Abington, is the second establishment in size in this country, if not in the world, they having 217 tack and nail-cutting machines. It was established by Benj. Hobart in 1810. Since the Albert Field Tack Company has been incorporated (now 2 years) it has never failed to pay a divi-The Northampton Emery Wheel Com-

The Northampton Emery Wheel Company, manufacturers of emery wheels and emery-wheel machinery, intended to exhibit in the manufacturers' and mechanics' exhibitions, but by reason of their great rush of business, the proposition has been abandoned. Orders for machinery, which it will take at least two months to fill, are on hand, although they have increased their facilities each year, which are now double what they were 13 months ago.

The firm of Nichols Bros., of Bernardston, are fast establishing a name in the

on, are fast establishing a name in the manufacture of butchers' shear steel knives, of which they make a specialty. They also manufacture table cutlery for the Boston and New York markets, and their business

and New York markets, and their business is assuming such proportions as to make it necessary for them to enlarge their capacity, which they intend to do very soon.

Sweetser & Merritt, manufacturers of upright drills and shoe machinery, at Brockton, are very busy in all their different departments. They make a specialty of upright drills and machinists' tools, building up a large trade in these lines, and the demand for their goods is steadily increasing, on account of the care and attention given to the business.

The American Bolt Company, at Lowell,

The American Bolt Company, at Lowell, are full of business, mostly on railroad car and track bolts; also machine bolts and nuts and every description of key screet This concern has been established over

years, and is one of the oldest and most reliable of its kind in the country.

The Belcher & Taylor tool factory, at Chicopee, has hard work to keep up with its orders, and for some time the shop has been running part of the night.

Arrangements have been completed by which the Plymouth Foundry will resume

work as soon as iron can be brought to that

An addition 100 feet long and 84 feet wide will be built on the north end of the

foundry at the mowing machine works at Hoosack Falls this summer.

All the jewelry shops at North Attleboro' are now running full time, and orders are coming in rapidly.

put in place. They are 200 horse-power each, and with the present Corliss engine of 400 horse power are expected to furnish all the power required. The Celt's Manufacturing Company, at

order from the kapid Telegraph Company for 200 key perforators.

The Hartford Spring and Axle Company, at Norfolk, are building a large addition to their works.

The Weed Sewing Machine Company, at Norfolk, are building a large addition to their works.

The Weed Sewing Machine Company, their works are the first ever forged in Pittsburgh, and are well worth seeing. They go to New Orleans.

The Phœnix Glass Pot Factory, at Brushtations and samples.

market. They are building a gang machine for sewing 13 rows of stitches simultaneously. It has a very powerful feed, with high speed, and a long and elastic stitch. They have just completed a large order for needle machines for the McKay Association.

DELAWARE.

A number of workshops belonging to Pusey & Jones, iron shipbuilders, Wilmington, were destroyed by fire last Monday, also a new steamer built for South American waters. The loss is roughly estimated at \$75,000.

PENNSYLVANIA.

Two hundred refrigerator cars have been ordered by the American Refrigerator Transit Company from the Lebanon Manufacturing Company, and are in course of construc-

Two hundred and ninety-seven and a half tons of pig iron were manufactured at the furnace of the Warwick Iron Company for

furnace of the Warwick Iron Company for the week ending Saturday, July 16.

On the 17th inst. William M. Kaufman & Co. bought the Topton Furnace of the Miners' Trust Company, of Pottsville. The price paid was \$60,000. This furnace is very well located, and the price paid for it is said to be quite low.

The rolling mill of the E. & G. Brooke Iron Company, in Birdsville, resumed operations on Monday morning last, after having teen idle two weeks for repairs. The work of blowing out Hampton blast furnace of this company was commenced on the 20th. The furnace has been working well for some time, but the discontinuance of operations became necessary on account of the supply of charcoal falling short. The company are consary on account of the supply of charcoal falling short. The company are concluding arrangements for reopening the old Warwick mines at St. Mary's, Chester County, which have been idle for about seven years, and will commence in a short time. The old engine and hoisting machinery, which were unfit for use, have been placed in thorough working order, a new steam pump placed in position and other apparatus of an improved kind added to enable mining operations to be carried on to the best advantage. The ore procured from these mines is magnetic, of more than from these mines is magnetic, of more than average yield and works very nicely in the furnace. Wm. Noble, mining engineer of the company, has charge of the repairs as well as the supervision of the work of taking out the ore. The mines of Smith and Buckley at the same place will also be put in operation as soon as possible.

The report that a portion of the Naw Mill.

operation as soon as possible.

The report that a portion of the New Mill has been leased and is to be put in operation Monday has no foundation on which to stand. The gentleman in charge of the New Mill and the gentleman to whom the 15 boil-informer towns the same possible. ing furnaces were reported leased both assure us of the incorrectness of the statement.—

New Castle Courant. The Hinge Works, Beaver Falls, have put the electric light.

Rebecca Furnace blew in on the 11th in-

On the 2d of July the Duncannon Iron Company completed the largest amount of iron and nails that has ever been finished in one year since the works have been in operation—the amount of iron being over 10,000 tons, or about 2000 tons in excess of any previous year and over 100,000 kegs of nails. They never have made more than 85,000

A new factory is being constructed at Stroudsburg for the manufacture of glassware and lamps. The factory will commence operations in the early part of September, and will be run by the Star Glass Commence.

Company. It is intended to stop all the old mills at the Phonix Iron Works, for repairs, at an early day. The breaking of the bearing brass under the fly-wheel shaft of the rail mill engine made a stop there imperative; so that mill shut down and will not start again until next Monday week. The North mill will run a couple of weeks longer to mill will run a couple of weeks longer to finish some pressing orders, and then it will stop for thorough repairs. The new puddle mill is progressing finely. The stoppage of the puddling department, together with the rail and west mills, puts many idle men on

PITTSBURGH AND VICINITY.

Wm. Clark & Co., of the Solar Iron Works have commenced running double turn, and are full of orders.

Everson, Macrum & Co., will be compelled to defer their usual stock-taking a month, on account of pressure of business.

The Anchor Coke Works, at Dunbar, Pa., owned by the creditors of the late Robert Henderson, and operated under a lease for the past year by Frick & Co., have been purchased by Morgan, Laing & Co., of this city. The new proprietors have been in the lime and coal business for some time past. They have assumed possession. The repairs at the Homestead Glass Works, of Bryce, Highee & Co., having been com-

pleted, they fired up on last Monday, and will keep running hereafter without cessation. Trade is very fair with this house.

The Siemens Anderson Steel Co. have had their works shut down for ten days for

taking an inventory and making repairs. They quit taking stock some time before. CONNECTICUT.

Work is now going on as usual. It was found necessary to start sooner than was works in South Manchester have just been intended because of the great influx of or-

The Brownsville Rolling Mill employs 40

The Chartiers Glass Co., Limited, whose works are located at Chartiers station, Pitts-The Celt's Manufacturing Company, at Hartford, are very busy on their double-barrelled sporting guns, having orders from England and the Continent as well as domestic orders. The company sent off last week, and began making glass on Wednesday of this week, mestic orders. The company sent off last week army, all 10-barelled guns, capable of throwing 1000 shots per minute on a range of one which is as good as the best of the tank furnesses army. The company are just finishing an access row in use in this country. They have access row in use in this country. They have access row in use in this country. They have a recompany are in the country that they are remained to the recompany are in the country. mile. The company are just finishing an naces now in use in this country. They have order from the Rapid Telegraph Company enough orders on hand to keep them moving

HINGES.-SCOVILL SPRING



WROUGHT IRON WITH BRASS SPRINGS.

Packed with Screws. DOUBLE JOINT. SINGLE JOINT.

Per dez. Pairs. 2½ inch, No. 301 \$3.60 2½ inch, No. 311 \$7.20 3 " No. 303 4.40 3 " No. 313 8.80 4 " No. 305 6.75 4 " No. 315 13.50

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SINGLE JOINT. DOUBLE JOINT.

Depots: 419 & 421 Broome Street, New York. 177 Devonshire Street, Boston. 183 Lake Street, Chicago.

The above Spring is removed near the joint to SHOW the SLEEVE.

This is the VITAL POINT in a Spring Hinge, and they are only to be found on Hinges of our manufacture. In all others the Spring will soon break from wear against the pin.

PATENTED ARTICLES

MALLEABLE IRON,

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Screw, Kerosene Size

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NEW pattern Heavy Screw Clamps; For sale by all the principal Hardware Dealers. Send for Price List.

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For all kinds of Transoms, Fanlights and Skylights.

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Patentee and Sole Manufacturer, CHICAGO, ILL.



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WINDOW WEIGHTS.

Sole Manufacturer of

Park's Patent Folding Lunch Box. CLOTHES WRINGERS.



T. J. ALEXANDER, Manager, BOSTON, MASS.

REVISED DISCOUNT SCREW LIST

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Complete list with 14 discounts.

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We make Seven Sizes of Roller Mowers and Six Sizes of Side-Wheel Mowers. We claim for our Mowers

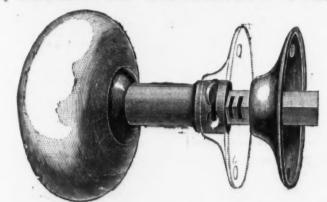
Perfect Work, Light Draft and Simplicity.

We have received many first premiums in competitive trials with other Mowers, both in this country and acroad. We have special patterns of Mowers for export, meeting the requirements of every market. Our new Horse Mower is conceded to be the Lightest and Best Horse Lawn Mower ever made. N. B.—Horse and Hand Lawn Mowers are alike guaranteed in all respects. Send for Illustrated Catalogue. Address

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The above cut represents an important improvement for securing the Door Knob meatly and securely on the spindle without the use of screws. Architects, mechanics and dealers pronounce this device superior to anything of its kind in the market. In fact, no first-class Door Knob is complete without it. No extra cost to dealer or consumer.

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In Use by **MEAT & FISH** Packers,

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FIVE SIZES.

Saves Time, Money and Labor.

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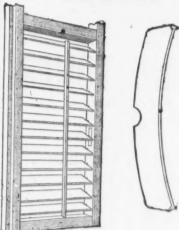
CLAUDIUS JONES & CO., ERIE, Penna.

This is the only Self-setting Trap on the market, and the most successful. All orders direct to

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Perfect Blind Slat Holder.

ALL OTHERS.



For tightening the Slats of Window Blinds and holding them at any required angle.

The sunlight is let in or shut out at will. The blinds are made a much better protection from cold, because when the slats are shut they are so kept by the Holder and cannot be moved by the action of the wind. Noisy rattling of the slats is prevented.

The holder is securely held by its spring and the sharp points at each end. As it is made of brass it will not rust.

It cannot get out of order. Its superiority over other holders is evident.

It requires no screws or nails to fasten it to the blind. Any one can apply it. It cannot get loose or deface the blind as others do.

No. 1, For Outside Blinds, 5 cents each; 50 cents per dozen. No. 2, For Inside Blinds, two for 5 cents; 25 cents per dozen.

At which prices samples will be mailed postpaid.

Trade Prices. No. 1, \$6.00 per gross; discount 50 per cent. No. 2, \$3.00 per gross; discount 50 per cent.

FOR SALE BY THE TRADE.

In case your jobbing house cannot supply you, orders will be promptly filled by

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Is designed to be attached to any Barrel or Cask, thereby converting the same into a temporary Tank, fitted with an effective Pump, and while protecting contents from dirt and waste, the owner has entire control of same, by simply locking the cover.

It entirely does away with the labor and waste attendant upon emptying Barrels into any of the numerous Metal Tanks, while securing all the conveniences of the same, at a GREATLY REDUCED COST.

The Apparatus can be adjusted in a few moments to a Barrel of any size, and as quickly shifted to another when contents are exhausted, the process of connecting being very simple.

It is as compact in form as is consistent with perfect efficiency, and we feel confident that a trial will demonstrate its practical value.

WHO HAS USE FOR IT?

EVERY ONE

Who buys in bulk any of the various kinds of Oils, or in fact any Fluid that can be Pumped;

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We own them all, and shall suppress infringements. The genuine cleaner is plainly stamped, "Manufactured by *Ferfection *Window *Uiraner** Co., incorporated July 26, 137.8. Has patent hollow handle with P. W. C. Co. cast in face. Our manufacturing facilities are so large that we undersell cheap and worthless infringements. We gladly mail samyle sleaner with price lists to wholesale trade. Address,

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PATENTED Scand, Pad Locks With Flat Keys. Shackel secured to the Lock Box.

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We are ready to supply the trade with the

Cheapest and Best Mower now in the Market.

Every machine unconditionally warranted. It has a adjustable vibrating handle, perfectly adapted for Terraces, Stopes and every variety of Lawn. EVERYBODY CAM AFFORD TO BUY THE "DAISY."
Manufactured in four sizes, for hand use.
Liberal discount to the trade.

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HILDEBRAND PUMP AND TANK Economical, saves all Economical, saves all the oil, reduces insur-ance, The best ar-rangement extant. Can be used in barrel as-readily as in tank. No measure or funne-

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4,5 and 6 fingers.
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Will start when the injector is hot.
Less liable to get out of order than a pump.
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> FORGED OX SHOES. The only Ox Shoe made with patent concavity to fit hoof. Also Flat Shoes with two calks complete, at same price.
>
> Worth double any Malleable from Shoe. Greenfield Tool Co.,

Greenfield, Mass.

be in readiness to turn out pots by about Aug. 1. There are plenty of orders on hand and a good trade is anticipated.

оню. The Canton Cutlery Company are turning

out 150 kinds of cutlery. The Long & Allstatter Company, Hamilton, manufacturers of power punches, shears, &c., are at work on several heavy machines for the Gautier Steel Company, Johnstown,

The Bolton Steel Works, of Canton, have received two orders from one firm recent-y, aggregating \$70,000.—Cleveland Trade The Himrod Furnace, Youngstown, has

een blown out. Whitley, Fassler & Kelley are building the largest shops yet built in Springfield, for the manufacture of reapers, mowers and self-binders.—Cincinnati Trade List.

Cordesman, Egan & Co., Cincinnati, man-facturers of wood working machinery, contemplate building another large addition

to their workshops.

The agricultural implement manufactory of J. W. Stoddard & Co., Dayton, is doing a large business.

New boilers have been put in the Akron

Company's Rolling Mill, Akron.

Monitor Furnace is now operated by the Car Wheel Iron Company, and is making an average of from 6½ to 7 tons car wheel iron per day, selling the iron nearly as fast as it is made, which proves how much value it has in the market. Her present blast, which commenced on the 18th of June, to consist of 1500 tons, will likely last till Feb ruary next.

The Speed Recorder Company, Kent, lately shipped 21 machines, one of which went to Derby, England. The machines are being successfully introduced in Europe. The company have received an order for casting coal car wheels for coal companies at Akron.

Pine Grove Furnace, which blew in on the 28th of May, is doing finely, making from 15 to 18 tons of hot-blast iron per day. Her present blast is expected to amount to 3000 tons.

The following new companies have been incorporated: The Youngstown Glass Roofing Company; capital, \$10,000. The Queen City Forging Company, Cincinnati; capital, \$50,000. The Champion Sewing Machine Company, Hamilton; capital, \$100,000. The Ohio Iron Company's blast furnace at

Zanesville has blown out, after a continuous run of two years and the production of 28,000 tons of pig iron. New stacks, hot-air furnaces and new machinery will be put in, and the furnaces will probably blow in in October

The Webster, Camp & Lane Machine Company, Akron, manufacturers of engines. boilers and mining and milling machinery, have a new brick foundry nearly completed, the dimensions of which are 116 x 72 feet.

KENTUCKY.

The nail and keg department of the Norton Iron Works started up again last week after several days of rest. Hunnewell Furnace cleaned her boilers

st week, and is again running her usual 16 to 18 tons per day average. Her bridge

The Lithgow Mfg. Co., Louisville, are making extensive additions to their works, which, when completed, will cover half of an entire square, fronting on Main street. The new building will be three stories and mansard roof, and will be one of the largest manufacturing establishments in the Southwest.

TENNESSEE.

Railroad Company and Sewanee Furnace Company, covering a large body of land, including 15,000 acres of coal, 500 coke ovens, a blast furnace making 100 tons of iron daily, and a standard gauge railroad of 21 miles, with seven miles of branches, the cost of the improvements alone approximating \$2,000,000, has been bought by a party of New York and Nashville capitalists. The price paid is not named.

ALABAMA.

Willard Warner, of Tecumseh Furnace, writes to the Iron and Steet Bulletin as follows, under date of July 5: "We entered on our seventh year of blast, on one hearth without blowing out, on the 19th ultimo, and the furnace is making 20 tons per day on 110 bushels of charcoal." This furnace is for year feet, and uses brown hematic or is 60 x 12 feet, and uses brown hematite ore. Its long run is a fact

ILLINOIS. The Vandever Corn Planter Co., of Adams

County, gives notice of an increase of capital stock from \$50,000 to \$100,000.

Shumway, Burgess & Co., of Chicago, have recently taken the contract for 200 tons of belts to be used in connection with Railway Company.

The Western Fence Co. have recently taken the contract to fence the whole of the

Wabash Railroad, 600 miles.

Wabash Railroad, 600 miles.

Robert Tarrant, proprietor of the Marine Engine Works, Chicago, having on hand an unusually large amount of work, is running his establishment day and night. He is building 17 barb-wire machines for various firms in different parts of the country.

John Davis & Co., of Chicago, are adding new pipe-cutting machines, lathes and tools to their works.

The artesian well at the Elgin watch fac-

The artesian well at the Elgin watch fac-

The artesian well at the Elgin watch factory is now down 1185 feet.

The Chicago Die and Machine Works have just completed a staple machine, to be used in connection with I. L. Eliwood & Co.'s barb-wire works at DeKalb. The machine is a very powerful one, is fitted up in steamengine shape, and is of the latest improved design. Its capacity is 500 staples, a minute, Mr. T. G. Perkins, for many years a practical machinist in Chicago, has consolidated with the Chicago Die and Machine Works. The capacity of these works is now doubled. The contracts for trimmings which the Union Brass Mfg. Co. have taken during the past week amount, in the aggregate, to 600 cars. They are full of orders till late in the fall, have just placed a new 100-horse-power engine in their works, and are employing on overtime between 400 and 500 treal machinist in Chicago, has consolidated with the Chicago Die and Machine Works. The capacity of these works is now doubled. The contracts for trimmings which the Union Brass Mfg. Co. have taken during the past week amount, in the aggregate, to 600 cars. They are full of orders till late in the fall, have just placed a new 100-horsement.

Middle ... 1,837 3,202 6,766 10,091 12,468 14,333 12,207 12,468 14,333 12 12,468 14,33

Fifteen shares of Rockford watch factory of population. Since 1850, the center of ock were sold the other day at \$175.

stock were sold the other day at \$175.

The Taylor Horse Power Company lately furnished the Illinois Central Railroad with a number of their machines, to be used in defining electric terms. driving elevators.

MISSOURI.

The Midland blast furnace has blown out temporarily, for the purpose of undergoing ecessary repairs.
All of the blast furnaces in South St.

Louis, except the three at the Vulcan Steel Works, are in full operation; the latter have their fires banked, and will not be blown in again until the coal-hoisting apparatus results. ratus recently destroyed by fire has been

The St. Louis Stamping Company's rolling mill has been closed, and will not be started up again until about the middle of Septem-

The announcement of the burning of the foundry of the Excelsior Manufacturing Co., in St. Louis, was received with genuine regret by the whole stove trade of the countries of t try, and by manufacturers in many other lines. The dear old man who stands at the head of this corporation, the venerable and beloved Giles F. Filley, has had more than his share of troubles of late, and he and his business associates have the warmest sym-pathy of all their friends. The company have issued the following circular.

Office of Excelsion Manufacturing Co., Nos. 612, 614, 616 and 618 North Main st., St. Louis, July 13th, 1881.

To Our Friends and Patrons: We have again met with a severe loss by the burning of our foundries. We have saved most of our patterns and machinery, and shall resume work at once.

We shall devote ourselves particularly to the manufacture of our "Charter Oak" stoves and ranges, and confidently expect to be able to fill all orders for them with little or no delay. Our salesroom, office and inttle or no delay. Our salesroom, office and tinners' stock department, being in another part of the city, were not injured, and we can fill all orders for tin plate, metals, sheet iron, stamped ware, &c., as usual.

Yours respectfully. EXCELSIOR MANUFACTURING CO.

Our Center of Population.

Mr. Henry Gannett, geographer for the tenth census, recently reported to the Super-intendent of the Census a highly interest-ing return on the center of the population of the United States. That center, Mr. Gannet defines technically as "the point at which equilibrium would be reached were the country taken as a plane surface, itself without weight, but capable of sustaining weight, and loaded with its inhabitants, in number and position as they are found at the period under consideration, each individual being assumed to be of the same gravity as every other, and, consequently, to exert pressure on the pivotal registration of the proportional to his distance. quently, to exert pressure on the pivotal point directly proportioned to his distance therefrom;" which is tantamount to saying that the center of population is the center of gravity of the whole population. It appears that in 1790 the center was 23 miles east of Baltimore, or at 39 deg. 16 min. N. latitude and 76 deg. 11 min. W. longitude. Since then the center has steadily moved due west, almost exactly on the 39th paralle of latitude, until in 1880 it stood at latitude and a latitude and latitude and longitude 84 deg. 30 min., having shifted during the 90 years 8 deg. 28 min. of longitude. This due west ward movement has varied, in distance traveled, between 36 miles and 81 miles pe decade, and aggregates for the whole perio The property of the Tennessee Coal and ilroad Company and Sewanee Furnace ment will show the number of miles that

1200-22	miles ea	st of B	Altin	n	O	P	A.							
800-M	ovement													
1810-	8.5	86												
1820	6.6	4.6												
1830-	0.6	0.6												
1840-	6.0	6.6												
1850-	40	4.6						 				 		
1860-	6.6	8.6							ì			 		
1870-	6.6	**							Ĺ		ĵ.			
1880-	4.0	6.0						 			ï			
Tota														۰

This westward march of population does not appear to have been materially affected by political commotions. During the peaceful decade ending with 1810, the center made during any of the decennial periods; and yet, in the troublous 10 years ending with 1820, the center advanced 50 miles westward. During the 10 years between 1860 and 1870, however, the westward advance was only 42 miles, while in the next preceding decade a march of 81 miles was accomplished. It would be difficult to account for this striking difference upon any other grounds than that the great civil struggle that broke out in 1861 temporarily exhausted the spirit and resources of westward enterthe spirit and resources of westward enter-

While the utilization of the vast agricul-Northwest, and the populating of the Pacific slope have been the main factors in producing this constant shifting of the center of population, yet these causes could never have operated beyond a very limited extent had it not been for the introduction of had it not been for the introduction of steam transportation, especially as applied to the railroad. Accordingly, we find a counterpart to this westward advance in the development of our railroad system, as will appear from the following statement of the mileage of road in each of the geographical divisions for the five latest decennial years, compiled from Poor's Manual of Railroads:

Cuntan	1841.	1850.	1860.	1870.	1879.
States.	Miles	Miles.	Miles.	Miles.	Miles.
New England Middle Western Southern Pacific	589 1,837 196 913	2,508 3,202 1,276 2,035	3,660 6,706 11,064 9,182	10,001	5.903 15.679 40,963 14.333 3.619
Total U. S	3,535	9,021	30,365	53,399	86,497

During that period, the mileage of railroad has increased 3395 miles in New England, 12,477 miles in the Middle States, 12,203 in the Southern States, and no less than 45,687 miles in the Western States. The bearing of this large Western increase of railroad facilities are several to the second of this large Western increase of railroad facilities upon the current of population cannot be regarded as having yet been fully realized. The shortening of travel, the opening up of fruitful lands, and the creation of mining, manufacturing and commercial resources, which have been effected by the 47,000 miles of railroad now traversing the region west of the 35th line of longitude and north of the 35th of latitude, cannot fail to exert continuously and increasingly an attraction upon the tide of immigration an attraction upon the tide of immigration and upon the population located in the Eastern and Southern sections. There is Eastern and Southern sections. There is more than mere poetic sentiment in the motto, "Westward the Star of Empire takes its way." On this continent, the laws of soil and climate and mineral distribution make it a natural necessity that the future preponderance of population, wealth and political power must lie between the Allerangies and the Rocky Meantains. the Alleghanies and the Rocky Mountains; and they build blindly who base their plans for the future upon any other expectation. There is no little danger attending the as-sumption that our Eastern trade centers are to control perpetually the commerce of the country. No intelligent traveler through the West can fail to discern at such cities as Chicago, Cleveland, Cincinnati and St. Louis the broad foundations of a manufacturing industry that is ere long to throw into the shade the wealth of will property that has hitherto supplied the merchandise consumed by the West. For its foreign commerce, that section must always remain dependent upon the great Atlantic cities; and the inter-mediary functions in that commerce per-formed by New York will carry therewith a vast system of exchanges that must make this city for all time the great financial center of the country. But as respects our rapidly increasing domestic industry, it may as easily as not turn out within a few years that the East is as dependent on the manu-factures of the West as the West has hitherto been dependent on the productions of the East.—New York Commercial Bulletin.

The Effect of Low Rail Rates on Canal Shipments.

In order to show the effect of low rail rates on the shipments on the Eric Canal, the Railroad Gazette gives the shipments from Buffalo in successive weeks by canal and rail in this and last year:

	Week ending	May 27 June 3 June 17	Av. 4 weeks	June 24. July 1 July 8. July 15	Av. 4 weeks
	By canal.	1,812,000 1,579,840 2,016,400 1,286,500	1,673,685	1,3%,500 917,460 1,248,000 1,275,680	1,206,910
TOOK.	By rail,	1,202,500 1,267,500 1,168,600 999,600	1,159,400	2,136.700 2,129,600 1,556,400 1,998,200	1,955,225
	Per cent. by rail.	40.0 44.5 36.7 43.7	47.0	55.4 61.0	62.0
	By canal.	2,388,515 1,010,762 2,665,950 3,715,528	2,671,689	2,915,760 2,069,000 2,219,940 2,591,741	2,449,110
183e.	By rail.	1,328,500 1,322,000 1,450,900 1,019.754	1,200,289	1,849,195 1,819,950 1,388,200 1,514,435	1,642,945
	Per cent. by rail.	35.7	30.4	39.c 47.0 38.5	40.0

The very low rail rate first applied to the shipments of the week ending June 24, and the best illustration of the effect of these rates is made by comparing the average weekly shipments before and after these rates went into force. It will be seen that the canal shipments this year have averaged one-quarter less since the 15-cent rate was made, while the rail shipments have averaged to per cent, more. The decline in aged 70 per cent. more. The decline in canal shipments is the more significant, beful decade ending with 1810, the center moved only 36 miles, the shortest march made during any of the decennial periods; and yet, in the troublous 10 years ending ers. Further, the loss of the canal is not by any means measured by the gain of the railroads at Buffalo. A great deal more passes at Suspension Bridge, Salamanca and junctions further south, than at Buffalo, some of which at every place has been diverted from the canal by the low rail rates. verted from the canal by the low rail rates. The average canal shipments since the low rates have been but half as great as in the corresponding weeks of last year, and at rates which averaged less than 4 cents a bushel, against 6)4 last year. Roughly speaking, the canal boats received \$165,000 a week for carrying grain last year, and this year less than \$48,000, and their receipts for grain in excess of tolls were \$141,000 last year and \$36,000 this—about one-quarter as much. This is not only unfavorable for the Eric Canal, but also for the opening of the enlarged Welland Canal, the opening of the enlarged Welland Canal, from which a good deal has been expected.

A new freight car for the transportation of grain was placed on private exhibition in Milwaukee recently. It consists, says the Republican and News of that city, of four hollow cylinders made of iron and steel, 8½ feet long and 6 feet in diameter inside. These cylinder wheels can be loaded from the top or side, and with proper elevator facilities can be loaded or unloaded more easily and quickly than an ordinary car. The cylinders are perforated with minute holes that admit of a circulation of air through the grain, thus drying wet grain or preventing

Apparatus for the Prevention of Smoke.

Mr. E. C. Engert, before the Society of The following table, showing the several rates for the carriage of iron ore, pig iron, a simple apparatus for the prevention of smoke. The first principle underlying the construction of such devices must be not to allow the cold air to come in contact with the gases arising from green coals, and, for this purpose, the furnace is, so to speak, divided into two parts. The first door is recommended to the speak of the surface rates. wided into two parts. The fire-door is removed from the boiler, and a box fixed on in front. On each side of this box rails are placed inside, on which a plate or shutter may rest, which can be pushed forward or backward as required. When pushed for-ward it passes within the boiler and drops over the fire bars some 18 inches, thereby cutting off the draft and preventing the condensation of the gases arising when fresh coals are put on, thus preventing smoke and the cooling of the boiler.

A still more simple apparatus can be made with the same results, if the opening or flue will admit a higher box. The shutters can be cast together in one piece at an angle of about 130 degrees, to hang within the box on two pins or bolts, thus forming a swinging shutter. A rack is attached to the front of the shutter to reculate the meaning the shutter. of the shutter to regulate the movement. The advantages of this apparatus are: The cooling of the boiler is entirely avoided, the gases are consumed so that smoke is prevented, and there is a saving of from 15 to 20 per cent, of heat and coal.

20 per cent. of heat and coal.

In ordinary open fire grates the same object is attained, viz., the prevention of the cold air from coming into contact with the green coal, by removing the fire-lump and substituting for it a cast-iron box, which stands out at the back and is open in front only, and which is filled with coal. Within this box is a movable iron plate, which can be forced forward, carrying with it the coals from which the gases have been extracted from which the gases have been extracted and consumed by the heat in front, or moved backwards when the box wants refilling. To regulate the draft so that the fire burns brightly in front, a plate is fixed under the grate, coming forward at the bottom. Another plate, resting on pins, is placed on the top of the box to prevent the flame entering top of the box to prevent the flame entering the register. By this simple apparatus a bright fire is maintained in front of the grate, half of the heat usually escaping into the chimney is saved, there is little or no smoke, and the smallest coal can be used, and is, indeed, preferable. In kitchen ranges, stoves and vertical boilers, a similar box to the foregoing can be fixed, the mov-able plate being worked by a lever.

This apparatus can easily be applied to locomotives. A box is placed under the foot-plate the whole width of the fire grate, and the coals put in from the top. By this means the gases are almost entirely drawn out of the coal and consumed, the result being that there is very little, if any, smoke. To supply the grate, the coal is pushed forward by a movable plate and lever.

Quicksilver Trade.-The two principal features of the quicksilver trade last month were the large receipts and the small exports. The deliveries were 5152 flasks, which, though 1100 flasks less than in May, were the largest of any other month this year. The exports were 2552 flasks. With the exception of February, when the quantity was 2320 flasks, this is the smallest quantity exported in any month this year. The total exports for the six months ending June 30, were as follows. June 30, were as follows:

China and Hongkong	Flasks.	Value. \$288,542
Japan	275	8, 135
Australia		3,000
Peru	500	1,414
Central America Mexico		x,597
British Columbia	3.3	269,127
Panama	350	4,670
Totals		\$510.664
Same time in 1880		548,905
Same time in 1872	27,703	821,807

The principal sources of demand are China and Mexico. In the first six months of 1879, China took 20,182 flasks, or twice as much as for the past six months, while Mexico took only 5289 flasks, or a little over one-half of the quantity for the past six months.—San Francisco Bulletin.

An Ottawa (Ontario) paper, in speaking of the lumber interests at that point, says that slabs nowadays at the various saw mills

The Sherman Process Co. are almost invariably worked up into fence pickets and lath, and have become a source of wealth to the mill man, paying about as well as the lumber itself. But still there are the edgings, which are cut into 4-foot lengths

and for firewood, as well as the worst

and

roduced, the best of the latter

match manufacturers. of the blocas match matc being disposed of to darful knack Some in the trade show a wobal of utilizing every iota of material in a look after the lumber, come pickets and lath from the slabs, matches from the edging blocks, and fire lighters from the sawdust, a portion of the latter being also used for purposes of fuel in feeding the furnaces supplying the power for the match factory and pail and tub factory. If a slab is thick enough to produce another board, it is sent through the English gate and split, the balance being passed to the lath mill, where as much of it as possible is made into lath and fence pickets, the edgings being for firewood. Slabs that will not bear resplitting are thrown into what is called the "hog," a machine that chews them up so effectually that one would scarcely recognize them as having once been a portion of a log. This that one would scarcely recognize them as having once been a portion of a log: This stuff, with sawdust proper, is largely used in filling up docks and for other purposes. The best of the blocks from deals are sold to match makers, and the rest used for firewood. Match blocks are worth about \$5 per cord, and, as the production is about 150 cords for six months, it brings in quite a nice arount in a season—ooo cords at \$5 a cord amount in a season—900 cords at \$5 a cord amounting to \$4500.

The difficult task of removing the great iron tower in Philadelphia, known as Sawyer Observatory, has just been successfully Observatory, has just been successfully accomplished. It was 160 feet in hight, accomplished. It was no feet in hight, 8 feet in diameter at the base, and weighed 40 tons. By means of a pair of shears, formed of two massive timbers 90 feet long, fitted with a block and tackle, the tower was swung from the center and lowered to the earth, where it will be separated into sec tions of 25 feet each for removal to Boston

The following table, showing the several

District.*	Maximum per ton per mile.	Minimum per ton per mile.	Average per ton per mile,
IRON ORE.	Pence.	Pence.	Pence.
North Staffordshire	3.24	0.56	0.93
West Cumberland	2.40	1.55	1.88
Northamptonshire	0.65	1.50	0.55
Lancashire	5.25	1.26	3.03
South Wales	1.48	1.36	0.88
Scotland Pig Iron.	1.6	0.5	
Cleveland	2.15	1.71	1.10
North Staffordshire	1.83	0.74	1.17
West Cumberland	2.40	0.54	0.96
Lancashire	1.67	0.78	1.28 X.X
Lancashire	2.0%	0.60	1.09 1.11
Northamptonshire	1.19	0.92	1.00
South Wales	3.75	0.67	1.22
Lincolnshire	x.38	0.78	1.02
MANUFACTURED IRON.			
Cleveland	3.07	0.83	X-44
West Cumberland	4.80	0.66	1.46
Lancashire	2.42	2.24	1.87
North Staffordshire	2.32	0.90	1.62
South Wales	5.78	0.74	1.57

*In Cleveland the rates for iron ore vary from three farthings to one penny per ton per mile.

great strike of the nail makers of Staffordshire, which began last month, when 30,000 operatives went out, has ended, the masters having conceded the 30 per cent. advance in wages demanded.

Special Notices.

AUCTION NOTICE.

TRADE SALES.

Auctioneers. 83 Chambers and 65 Reade Streets, NEW YORK.

TUESDAY, August 2d,

Large Sale of Hardware, Housefurnishing Goods, Cutlery, &c.,

Comprising a very large assortment of Hardware, Tinned Ware, Pumps, Table Cutlery, Wooden Ware, &c. Also large line of White Enameled Ware, 100 doz. Shovels, &c., &c.

TUESDAY and WEDNESDAY, Aug. 16 & 17, LARGE TRADE SALE OF

Hardware, Edge Tools, Table Cutlery, Housefurnishing Goods, 500 lots Stamped, Tinned and Enameled Ware, &c., &c.

Particulars in future advertisements.

Manufacturers and importers who desire to confibute to this sale will please forward their inoices as early as possible.

Nut and Bolt Machinery FOR SALE.

One No. 1 Nut Machine, capacity 136 inch nuts (Bolt size), hexayon and square, and all smaller.
One No. 1 Washer Machine, capacity all washers on the Machine, capacity all washers and washers and washers and washers and washers and washers.

Two No. 2 Washer Machines for 1/2 in. muss and under,
One No. 3 Nut Machine for 1/2 in. nuts and under,
hexagon and square.
One Circular Shears for cutting sheet metal.
Three Double Head foot Cutters, automatic stop for
all threads to 1/2 in.
Six Bolt Pointers for 1 in. bolts and under.
Six Bolt Pointers for 2 in. bolts and under.
Six Crank Planers, especially intended for rapid die
making or short surface planing, particularly adapted
for making tools for our machines.
One each 4 and 6 spinde Nut Tappers.
These machines are either completed or will be in
about two weeks, and are the same we have hereto
fore furnished so successfully to bolt manufacturers,
car builders, iron works, rail mill; nailways, &c. &c.
in this country and anada. Our last tot of six each
No 2 Nut Machines and No. 2 Bolt Headers are all sold,
and it will be about 4 weeks before we shall be able to
complete any more.

YORK & SMITH. CLEVELAND, OHIO.

9 Pemberton Square, Boston, Mass.,

Manufacture of Iron and Steel

In the Bessemer Converter, Crucible, Siemens Martin, Puddling, Blast and Cupola Furnaces. The use of this Process improves the quality of the product, saves fuel and labor, and does not re quit, any change in furnace or manner of working See p. 30 if The Iron Age of Oct. 25th, 1877.

For Sale.

A train of rolls, nearly new, co. "sisting of the ollowing pieces for metallic rolling:
One pair 16 pinion housings.
Two pair of 2-high 16-roll housings.
One pair 16 x 20 chilled planishing rolls.
One pair 16 x 30 chilled planishing rolls.
One pair 16 x 30 chilled grooved rolls; takes from \$\frac{3}{2}\$ billet to 7-16 round.
Spindles and couplings complete, and all necesary gearing for driving 16 train.
One blast furnace.
One 14-foot driving wheel, 24 in. face, in halves.
For price and particulars apply to THE BIRMINGHAM IRON FOUNDRY.

Birmingham, Conn. NEW MAP OF THE MENOMINEE IRON RANGE.

Scale, 34 in. to mile. Size, 35 x 55.
Mounted on rollers, or on cloth in cases. Price, \$6.00

Sent to any part of the United States free of SILAS CHAPMAN, Milwaukee, Wis.

WANTED.—Engagement with an iron manufac-turing firm, either as salesman, agent, super-intendent of works, or general business manager. References given when required. Address, E. McMILLIN, Pomeroy, Ohio.

Sanderson Bros. Steel Co.

Special Notices.

New and Second-Hand

MACHINERY One Horizontal Engine, 151/2 in. x30 in. Todd & Raf-

One HOTIZORIAL ENGINE, 3 in.x6 in.
One Horizontal Engine, 3 in.x6 in.
One Beam Corliss Engine, 500 H. P.
Portable Engines from 12 to 25 H. P.
Two Horizontal Return Tub. Boilers, 100 h. p. each.
One Hor. Tubular Boiler, 6 ft x14 ft. 67 4-In. tubes.
Two Hor. Tub. Boilers, 4½ ft.x13½ ft., 43 4-in. tubes.
One Locomotive Steel Boiler, 30 h. p.

MACHINISTS' TOOLS.

Twelve Lathes, 22 X 12. New. Ten Lathes, 18 x 8. New.

Twelve Laches, 12 x 2. New.

Ten Lathes, 15 x 3. New.
One Cameron Pump, No.
One Styles & Parker Foot Press.
One Root Gas Exhauster, No. ½.
One Lathe, 24 in. x 13 t.
One Upright Drill, 32 in. Pond.
One Milling Machine. Pratt & Whitney.
One Milling Machine. Wood & Lught.
One Tapping Machine, 6 in. Saunders' Sons.
One Tapping Machine, t/s in. Saunders' Sons.
One Hydraulic Press. 8 inch ram.
One 300-ton Hydraulic Press and Pump
One Knowles Special Pump, No. 7.
One Bliss & Williams Foot Press.
One Peck, Stow & Wilcox Foot Press.
A large stock of Shafting, Pulleys, Hangers and
Miscellaneous Machinery,
One Upright Drill, 36 inch.

Miscellaneous Machinery,
One Upright Drill, 36 inch.
One Burleigh Rock Drill, No. 4. New.
One Hotobki'ss Compressed Air Hainmer.
Fifty Wrought Iron Vises, all sizes.
One Daniels Planing Machine.
Three pair Fairbanks' Scales, 2500 lbs. each.
One Pipe Cutting Machine.
One Pipe Cutting Machine.

J. GRAY'S MACHINERY DEPOT, 37 Dey Street, New York, U. S. A.

Household Specialty Wanted.

The advertiser being in position to advertise and sell articles of household convenience very largely, would like exclusive or general agency for one or more articles of general necessity, which can be sold largely and cheaply. Correspondence is invited and full particulars are desired.

Address,

Minneapolis, Minn.

Wanted to Purchase,

BISSELL & WELLES, Second-hand Engines, Boilers and Wood-working Machinery. BELCHER & BAGNALL,

Wanted.

40 Cortlandt street, N. Y.

A GOOD SECOND-HAND TRIP HAMMER, suit able for drawing Picks, Mattocks, Grub Hoes, &c. Address, with full particulars, B. M. C., Ironton, Ohio.

Partner Wanted

with means, for manufacturing the patent Grappling Bucket and Scale; also Hoisting Bucket and Scale, used for automatically handling coal, grain, earth, dredgings, &c. I am well used to handle large numbers of workmen. References and particulars exchanged. F. IMHORST, 61 N. Liberty street, Baltimore, Md.

Wanted.

Non-Union Men to work at Burgess Steel and Iron Works, Portsmouth, Ohio, Six Puddlers. One Bar Mill Roller. One Guide Mill Roller. One Heater. One Shingler.

Wanted.

P. O. BOX 2018, New York City.

Wanted.

lery. Must be well acquainted with the Southern jobbing trade. Address A. B. C.,

Office of The Iron Age, 83 Reade St., New York. Wanted.

BIDS FOR WATER WORKS MATERIALS .-The village of Three Rivers, Michigan, is about putting in water works to be run by water power, Bids for each and all the parts that enter into same olicited. For particulars address

D. M. BATEMAN, Sec'y Water Board, Three Rivers, Michigan.

Wanted.

Two pair of housings to take in a sheet roll for 16 in. journal, all complete; also, one pair pinions to match. All second hand. Two pair sheet rolls, about 22 in. long, 18 in. diameter; necks, 16 in. diameter, 12 in. long, second hand or new. Address, with full particulars, Office of The Iron Age, 83 Reade St., N. Y.

WANTED.—A position as Manager or Superintendent of a Rolling Mill, or to build Rolling Mills. I make my own drawings; have built several mills North, and one blast furnace and two rolling mills South; or I would take a position as inspector of rails.

The best of references given. Address,

BOX 115, Chattanooga, Tenn.

WANTED—By an experienced Hardware Salesman, a position with some Hardware manufacturer as Salesman in New England and lower provinces. Best of references. Trade thoroughly established. Address F., No. 3 West St., Boston.

A N A-1 METALLURGICAL CHEMIST, who has many years' experience in the who has A N A-1 METALLURGICAL CHEMIST, who has had many years' experience in the management of Blast Furnaces and Iron Foundries, and thoroughly understands the manufacture of Spiegeleisen, is open for an engagement.

Office of The Iron Age, 83 Reade St., New York.

STTUATION WANTED—By a first-class black-smith, as foreman in a locomotive or car shop. Address,

2241 Ingersoll St., Philadelphia, Pa.

Special Notices.

NUT AND BOLT MACHINERY

For Sale.

Second-hand Lewis, Oliver & Phillips Header. Pratt & Whitney Tire Blank Header. Also, over ONE HUNDRED different sizes and patterns of Bolt Cutters, Tappers, Nut

Machines, &c. The only Specialists in this line in the United

Patentees and owners of the celebrated Nationa **Bolt Cutters**

NATIONAL MACHINERY CO.,

Cleveland, O.

For Sale.

The Little Schuylkill Rolling Mill, at Milldale, Schuylkill County, Pa., near Port Clinton, on the line of the Philadelphia and Reading Railroad, consisting of a Merchant Bar Mill in complete running order, with a splendid water

power sufficient to run the mill two-thirds of the year. Engines, Boilers, Foundry and Machine Shop, with Lathe for turning rolls, and all other appurtenances necessary to commence operation at once. Together with dwellings, stables and large tract of land, to be sold low if applied for soon. For further particulars address or apply to J. O. RICHARDSON,

No. 232 Dock street, Philadelphia.

TO CAPITALISTS.

FOR SALE. A Rolling Mill and Nail Factory, located on the Pennsylvania Raliroad, in the iron and coal region of Pennsylvania, will be sold to close out an estate. The works have a capacity of 6000 tons per annum, are now in first-class running order, and have always done a successful business.

Address,

ADMINISTRATOR,

Office of The Iron Age, \$3 Reade St., New York.

For Sale.

Hardware stock in Western New York. Will sell Hardware without Tin Shop, if desired. Stock clean and in good shape. Will invoice about \$3000. A rare chance, and good reasons for selling. Office of The Iron Age, 83 Reade St., New York.

FOR SALE. - Machinery in Store.

Three 8 in. swing Drill Lathes, 4 ft. bed, hollow spindles.
Two 12 in, swing Hand Lathes, 4% ft. bed. Putnam Mach. Co.

Two 12 in. swing Hand Lathes, 4½ ft. bed. Putnam Mach. Co.
One 8 x 12 Portable Engine and Boiler.
One 5 x 12 Portable Engine and Boiler.
Two 8 x 12 Stationary Engines.
One 8½ x 12 Stationary Engines.
Three o x 12 Stationary Engines, link motion, suitable for hoisting purposes.
One Cooper Steam Pump, 8 in. steam, 4 in. water, 14 in. stroke.
Wood-working Machinery, Knowles' Steam Pumps, Fan and Cupola Blowers, Exhaust Fans, Centrifugal Pumps, Harrington's Screw Hoists.
Emery Goods and manufacturers' supplies. The celebrated Phoenix Steam Engines, 13 to 50 horse-power. Second to none, and 20 per cent. cheaper than any others.

I. H. PRATT, 15 S. Water St., Cleveland, O.

STEAM ENGINE FOR SALE.

ONE CORLISS HORIZONTAL STEAM ENGINE, 23½-in. cylinder, 36-in. stroke; shaft, 11 inches; balance wheel, 20 feet diameter; will run at sixty turns; will give 15-ohorse power easily. This engine is now in use and is for sale, not for any fault, but because its power is insufficient. Will be sold at a bargain if applied for soon. Inquire in person or by mail of the WASHBURN & MOEN MFG. CO., WASHBURN & MOEN MFG. CO.,

For Sale.

BLAST FURNACE PLANT, consisting of one BLAST FURNACE PLANT, consisting of one spo-horse-power Engine, with Air Compressors and connections; also, three Boilers, built by Balfour Works, Scotland, good as new. Also, a large lot of fire-brick. For further particulars, address BOX 2887, New York P. O.

TO INVENTORS AND MANUFACTURERS.

THE SEMI-CENTENNIAL EXHIBITION

OF THE CITY OF NEW YORK,
Will open September 14, 1851. Heavy machinery wil
be received as early as August 2; other goods, Sep
tember 4. Intending exhibitors must make early
application to secure proper space and classification
for blanks and information address General Super
INTENDENT AMERICAN INSTITUTE, New YORK City.

NOTICE.

TO THE HARDWARE TRADE Retail and Wholesale.

Before buying, send to me for quotations Will give special figures lower than market rates on a large line of Shelf Hardware and

A. W. WHEELER, 141 Lake St., Chicago.

J. SEIDEL, COMMISSION MERCHANT,

Havana, Cuba. Box 662.

Will be happy to accept the representation of first-class houses manufacturing hardware. References on file at the office of the American Exporter, 86 Duane Street, New York.

HEAVY IRON WORKS WANTED.

An Eastern Manufacturing Company, doing a profit ble business in heavy wrought from structures, the annufacture and sale of which they control for the nited States and Camada, with the establish additional frowince of Untario. Must have first-class freight dvantages for receiving rolled structural and mer hant Iron. Address

JOB LOT.

Special Notices.

ELEY BROTHERS' GENUINE BLUE CARTRIDGE CASES,

Twelve Gauge.

The best paper shell in the market. For sale cheap. Supply limited.

> ALFRED FIELD & CO., 93 Chambers St., N. Y.

JUDICIAL SALE

OF THE ARCADIA IRON WORKS PROPERTY.

As Special Commissioner of the Circuit Court of Rotetourt County, Virginia, I will offer for sale as public auction, to the highest bidder, in front of the Exchange Hotel in Buchanan, Vinginia, at 12 m., on Wednesday, the roth day of August, 1831, that VALUABLE MINERAL PROPERTY known as the ARCADIA IRON WORES, including the SKIDMORE PLACE, formerly the property of Wm. W. Boyd, dee'd, and recently sold by me to Richard N. Pool, who assigned his purchase thereof to L. F. Beckwith, Trustee.

PLACE, formerly the property of white and recently sold by me to Richard N. Pool, who assigned his purchase thereof to L. F. Beckwith, Trustee.

This property is situated on the lines of the Richard N. Pool, who assigned his purchase thereof to L. F. Beckwith, Trustee.

This property is situated on the lines of the Richard N. Pool, and the property of the Berford counties, beginning near Buchanan and extending down James River about the miles, covering about thirty-nine square miles (the foot-bills and Western slope of the Blue Ridge mountain), and embracing about theiry thousand acres in fee simple, and about four thousand acres in fee simple, and Magnetic—are very case in the simple of the fee of

FOR SALE.

80 h. p. (15½ in. x 36 in.) Horizontal Engine; two 50 h. p. Andrews Engines, double cylinders; 40 h. p. Upright Boller; 50 h. p. Horizontal Boller; Double Cylinder Engine, link motion, 6 in. x 8 in.; Turret Lathe with Chaser Bar; 20 in. x 12 ft. Slide Lathe; 18 in. x 18 in. x 18 in. x 19 ft. Planer; 3-Column Drill Press; Nos. 1 and 4 Root Blowers. 4 Root Blowers.
A. G. BROOKS & WINEBRENER,
261 N. 3d st., Philadelphia.

For Sale.

Hardware Stock and Business. Located in one of the best towns of Northeastern Pennsylvania. Stock clean and well assorted, suited to the requirements of the trade where located. Business of 30 years' standing. For terms and full particulars apply to JAMES S. KUHN, Towanda, Pa.

For Sale.

Ten Double Acting Power Punching Presses, At order. Eight Single Acting Power Punching Presses, At order. Most of the double acting presses are the No. 3 Waterbury Press; the single acting, No. 5. One large Bliss & Williams Punching Press. One hundred and twenty-seven Foot Presses in At order, most of them square slides, Address, THE GEORGE PLACE MACHINERY AGENCY, 121 Chambers and 103 Reade sts. N. Y.

For Sale.

Stock of hardware, stoves and implements, and store furniture, in one of the best towns in Kansas.

> HARDWARE, Box 366, Salina, Kansas

FOR SALE LOW.—ENGINE.

A Vertical High-Pressure Steam Engine, com plete. Cylinder, 24 in. by 48 in. Built by A. J. Sweeney & Son. Can be seen in daily use at our nail factory. LA BELLE IRON WORKS,

Wheeling, West Va. ENGINE AND BOILER For Sale.

6 x 15 Horizontal Engine in good condition; also, 15-Horse Power Boiler, Heater, Pump and all other fixtures; all nearly new.

BEECHER & PECK, Lock Box 122, New Haven, Conn.

NOTICE!

SPECIAL SALE OF

RAZORS

SEE ADVERTISEMENT ON PAGE 10

BRADFORD & ANTHONY, Boston. Dixon's Lubricants.

Manufactured by the
DIXON CRUCIBLE COMPANY, JERSEY CITY.
DIXON'S Belt Grease.
Dixon's Machine Grease.
Dixon's Perfect Lubricator.
Write for circular.
BREWSTER & PHELPS,
BREWSTER & PHELPS,
Dealers in Railway and Machinists' Supplies.
246 Clark St., Chicago.

POR SALE CHEAP.—Foundry, Machine, Black-smith, Boiler and Wood Shops, with engine and boiler. Line shafting and pulleys, Mackenzie cupola and blower, forges, &c. Address, E. M. BIRDSALL, Penn Yan, N. Y.

SITUATION WANTED.—As superintendent or as assistant superintendent of rolling mills, by a gentleman having long practical experience and with unexceptionable references.

Address, Box 67, Belvidere, New Jersey.

WM. O. DOUGLAS, Binghamton, N. Y.

Trade Report.

Office of THE IRON AGE, WEDNESDAY EVENING, July 27, 1881.

Wall street markets during the week unde review have been greatly unsettled. On the Stock Exchange depression has ruled almost from the beginning, despite the efforts of some to arrest the downward tendency. The railroad war has continued without cessation crop reports, on the whole, were discouraging, and the alarming bulletins received from Washington had a depressing effect. One week ago to-day an upward movement was inaugurated, based on rumors that the trunk lines were about to adjust their differences, and large purchases were made both on "long" and "short" account; but reaction ensued and prices fell off steadily until Saturday afternoon, when the supposed critical condition of the President caused a sharp decline, equal to 1 @ 5 per cent., in leading stocks. The Vanderbilt and Gould stocks, Milwaukee & St. Paul, and the coal stocks were most affected. On Monday the market continued feverish, and the day following there were further disquieting reports concerning the President, and for the first time in the bear campaign an attempt was made to break down government bonds, but the speculative sales were confined to the 4's. which were sold down 36, and these rallied after the call. To-day the market was decidedly strong during the last hours of business, the improvement in some instances amounting to a sharp advance, equal to 1/2 @ 41/2 per cent. from the lowest point. The Vanderbilt shares, Union Pacific and West-ern Union, the Denver & Rio Grande and Southwestern were the most active.

In railroad mortgages speculation tends to lower prices. State stocks through most of the week were dull and lower, but to-day are firm, Tennessee 6s selling at 72, Louis-4s, consuls, at 88.

The weekly bank statement indicates a loss of \$1,127,025 of surplus reserve, but excites no attention in the present easy condition of the money market. The banks now hold \$10,978,700 in excess of legal requirements.

The importations of specie and bullion at this port during the week ending July 22 and \$17,836 in silver, as against a total of \$8,726 for the week ending July 24 last year. The importations since the 1st of January and since the 1st of August compare as follows with the movement during the cor-

Lesbouring beriods mee lent .	
Gold \$183. 320, 828 Silver 1,692,613	1880, \$1,909.92 3,098,20
Total \$30,023,438	\$5,008,13
Since A	
Gold	1879-80.
Silver 4,163,961	\$76,937,900 6,075,72

Total \$100,773,757 \$83,013,620 The posted rates for foreign exchange remain 4.83½ and 4.85½, but the volume of business is small and the tendency toward lower rather than higher figures. Prime bankers' bills sold at 4.82 @ 4.83 for long and 4.84½ @ 4.85 for demand sterling; cables at 4.81 @ 4.85½ and commercial bills at 4.81 @ 4.81½.

at 4.81 @ 4.81 4. Money on call loaned at 3 @ 2½, with exceptional loans as high as 5 per cent. The monetary situation is characterized by ease, and there are no indications of a coming pressure. A large bullion dealer remarked that, in case grain exports should be re-newed on a scale at all approaching to last year, gold will come over here in large quan-

tities.

The suit of the New York Elevated Rail-road Company against the Manhattan Rail-way Company, to cancel the lease of its road, was adjourned by Judge Speir until

As above noted, the share market for the past week was irregular and unsettled, with a declining tendency, but rallied at the close. Comparing sales at the opening and at the close, the principal changes are as follows: Advanced—Hannibal and St. Joseph, ¼; Philadelphia and Reading, ¾. Declined—Louisville and Nashville, 3½; Western Union, 5½; New Jersey Central, 2½; Ohio Contral, 5; Peoria, Decatur and Evansville, 7; Wabash Pacific, 6½; Wabash Pacific preferred, 4½; Rock Island, 2; Chicago, Burlington and Quincy, 2; Union Pacific, 2½; Omaha, 2½; Texas Pacific, 7½; Missouri Pacific, 6; New York, Ontario and Western, 4½; Northern Pacific, 5½; Northern Pacific, 5½; Denver and Rio Grande, 4.

For the first time in several weeks the

imports of merchandise at this port shew a larger decline in value from the imports for the same week of last year, than the decline in the value of the exports for the corre-

sponding week.
Government bonds at the close were

quoted as follows:	Asked
U. S. 416's 1891 registered	1145
II. S. 416's 1891 coupon 114/8	8343
U. S. 4's 1907 registered	816
U. S. 4'8 1907 COUPOB 115/8	116
U. S. Currency 68 1895	_
U. S. Currency 68 1896	emba
U. S. Currency 68 1897 132	-
U. S. Currency 6s 1898	-
U. S. Currency 6s 1899134	_
" Sixes " continued	102/
" Fives " continued 101%	1015

The following is an analysis of the bank totals of this week compared with that of

last week	:			
	July 16.	July 23.		
Loans	\$348,744,400	\$349,240,500	Inc	\$496,100
Specie	81,946,900	81,491,400		455,500
Legal t'd'rs	17,058,700	16,752,000		306,700
Tot. reserve	99,005,600	98,243,400		762,200
Deposits	351,193,500	352,658,800	Inc.,	1,459,300
Reserve re-	0 0	00 -6	Tno	364,825
quired	87.799.875	88,164,700	Dec.	
Burplus	11,205,725	10,078,700		1,137,025
Circulation.	19,181,300	19,185,300	IIIC	41000

MINING STOCKS. The following were the closing quota-

tions for Mining Stocks:	-	-
	Bid.	Ask
Amie	38	
		7.1
Alice		2.1
American Flag	8	
Bell Isle		3.8
Bechtel		
Big Pittsburgh		2.9
Bonanza C	13	* * *
Buckeye	5	***
Boston C		3
Bull Dom		1.7
Bodie		7.1
Cala P. W		
Cale, B. H	1.00	1.1
Climax	48	
Consolidated Virginia	9.75	9.2
Consolidated Imperial	13	
Consolidated Pacific	85	
Chrysolite	5.87%	6.0
Cent. Ariz		2.1
Caribou		3.1
Dunderberg		8
Dahlonega	5	
Dunkin	61	
Great Eastern		
Goodshaw		6
Granville		
Green Mountain		5.5
Hukill		7
Hibernia	63	9.2
Lacrosse.	3.15	3.2
Leadville		8.4
L. Chief	1.40	1.4
Little Pitts		3.6
Mariposa		
Moose		0
	68	
Navajo		8
North Stan	7	
Ori. and Mil		7
Rappah'k		
Robinson		10.2
South Hite new		3
San Pedro		4.0
S. Nevada	9.25	0.0.0
Silver Cliff		4.5
Stormont		1.5
Stormont Spr'g Val	0.10	2.7
St. L. 1 and 4.		3.5
St. L. 2 and 3	90	9
Tioga		3.7
Union Con		11.5
Unadilla	8	***
	-	

GENERAL HARDWARE.

The demand for General Hardware continues active, and we hear of scarcity in many lines of goods. This is conspicuously the case in nearly all classes of Mechanic's iana consuls at 67½ and North Carolina Tools, including railroad and mining Tools, 4s, consuls, at 88.

Axes, Mattocks, Picks, &c. Very few changes in prices have occurred during the week, and the tone of the market is firm.

Leonard Bailey & Co., of Hartford, Conn., manufacturers of the "Victor" Adjustable Planes, &c., have moved into enlarged premises, and will have increased facilities for making their line of Planes, Spokeshaves, Try Squares and Bevels. Leonard were \$50,916, consisting of \$33,080 in gold Bailey, the inventor, gives personal attention to the manufacture of these tools. The Stanley Rule and Level Company are general agents for their sale.

The Western Nail Manufacturers' Association held a special meeting in Pittsburgh, Pa., to-day, at which existing prices were reaffirmed. The demand for these goods in this market is improving and values are steady. We quote 10d. to 60d., \$2.90 @ \$3, net, according to quantity.

Luther Boardman & Son, East Haddam, Conn., have issued a circular, under date of the 25th inst., in which they say :

Britannia Spoons, you are doubtless aware. Britannia Spoons, you are doubtless aware, for a long time past have been sold at ruinously low prices, and the late advance in metals, &c., from which they are made, compels us to make an advance in our prices, which we dislike to do, in consequence of no combination existing with our competitors, and we do not intend to reduce our standard of Britannia Spoons (co. 2011). competitors, and we do not intend to reduce our standard of Britannia Spoons (so well known) to compete with inferior goods. Our prices are as follows at this date, and we shall from time to time make such changes in price and discounts, as metals, &c., change in price: For less than full-case lots, 65 per cent. discount. Case lots consist of 6 gross Table or 12 gross Ten Spoons (say, 18) gross Table or 12 gross Tea Spoons (say, 18 gross), 65 and 5 per cent. discount. Subject to cash discount of 5 per cent., if remitted within 30 days from date of invoice, or 6 per cent. if remitted within 10 days.

their 1881 Catalogue and Price List. These prices are subject to their extra discount of 10 per cent. for cash in 30 days:

PARY'S NEW CATALOGUE OF 1881.

[No. 3.]

July 11, 1881.

ш	PART 6 NEW CATALOGUE OF TOST.	
	Page in 1881 Dis. Catalogue. per cen	t.
ı	1-4. Apple Parers	5
	Victor '78 '76 Gem '72	
	Per dozen \$9.00 9.50 7.50 0.80 5.05	
1	5. Measuring Faucets	3
	5. Kitchen Grindstones 331/3&2	0
1	6, 7, Tobacco Cutters, change list, No. 10, \$31.005	0
	8. Coffee Mills	3
	8. Nut Cracks	0
	9, Scale Weights	0
	9-15. Scales, Tea, Butchers', Counter, Standard	
	and Steel Bearing	0
1	16-19, Brackets, Store Shelf, Cottage and	
1	Resette	0
1	20-23. Flower Pot Brackets	4
١	24, Butts, Mayer's and Parliament No. 12	0
1		
1	25, Fast Joint Nos. 14 and 16	
	29, 30, " " Nos. 27 and 36	3
П		3
1		5
1		5
1	34: 33:	
1	200, 24	
1		0
1		
J	40, 41, 40 40 Nos. 38 and 40	3
1		0
1	43-45," Loose Joint Nos. 70, 65 and 75, add No.	- 1
1	75. 51/x51/4. \$9.50	2
1	46, Butts, Inside Shutter 60	
1	47.	
1	48, Hinges, Gravity Blind	5
ı	48, "Harbster's Shutter6	2
4	49, 50," Lull and Porter's and Alston's	- 1
J	Shutter	2
1	51, Hinges, Palmer's Blind	8
1	52, 53, Surface and Mortise Blind	5
ŧ		2
1	54, Shutter Catches	2.]
ĺ	54, 55, " and Blind Fasteners, and Turn-	1
ı	buoklos	1
1	56, 57, Gate Hinges, New England and State50 58, 59, Gate Latches50	1.9
Ì	58, 59, Gate Latches 59	-
Ä		

THE IRON AG
60, 61, Bolts, Tower, B. K., Barrel and Flat
Shutter
63, " Excelsior Shutter
64, Spring Foot
66, "Barrel, Nos. 797 to 805
67-73," Square, Bottom, Chain and Foot,
Nos. 635 640 660 665 685 690 757 762 760 765 \$3.35 4.35 3.35 4.35 3.65 4.05 4.00 4.50 4.35 4.85
w. Polta Chain and Square Door fofte
75. Square Door, Nos. 777 to 795
74. Barrel Sours Spring, Necked, Flat Ship and Barrel Sours Spring, Necked, Flat Ship and Barrel Spring, Necked, Flat Ship and Spring, Necked,
78-80, Bolts, Flush
02,
euroy, breas, onango nav
Nos. 3705 3710 3715 3720 3725 3730 3735 \$10,00 12.00 14.00 17.00 21.00 25 00 30.00
90, 91, Bults, Mortise Door
98, Bolts, Flat Cupboard25&10
100, 101, Cupboard Latches
\$15 70; No. 385, \$15 70
104, 105, 104, 105, 104, 105, 104, 105, 104, 105, 104, 105, 104, 105, 104, 104, 104, 104, 104, 104, 104, 104
Franch Window Catches
ric, iii, Cupboard Turus
113, Screen Door Catches 40&7/2 114, Door Buttons, Nos. 49 to 54 and Nos. 4070 to 4085 60 114, Door Buttons on Plates, Nos. 60 to 64 60& no 114, "" Nos. 4100 to 4110 66% 115, 116, Thumb Latches 400 117, 118, Barn Door Latches 400 119, 120, Store Door Handles 400 119, 120, Store Door Handles 400 119, 120, Store Door Handles 400
4085
114, "Nos. 4100 to 411066%
change list, No. 9, \$0.75.50
119, 120, Store Door Handles
120, 121, Thumb Latches, change list, No. 97, \$1.65; No. 102, \$1.85
120, 127,
130, 131, 50 132, 133, Store Door Handles and Locks. 15 134-137, 30 138-141, 31, 324
138-141, " " " 37½
134-137, " " 30 138-141, " " 37½ 142, Door Springs
149-157, Drawer Pulls
159, Chest Handles and Trap Door Rings60&10
160, Chest Handles
162-166, Hooks, Wardrode
168-177, " Hat and Coat
160, 107, Hat and Celling. 40 168-177, Hat and Coat. 40 178 184, "School House, Har- ness and Baggage Check. 40 184, 185, Hooks, Clothes Line. 50 186, "Chandeller. 40 187, "Lamp. 50
186, " Chandeller
187, Screw
167, Berew
192, Silding Door Stops and Shutter Sheaves
195, Pulleys, Brass Screw, Nos. 7000 to 703000 194-197, Pulleys, Japanned Screw, Incased, Side,
Upright, Ceiling and Swivel
199, "Dumb Waiter
202, 203, "Clothes Line
214-218, 44 Axle
221, " Spring 2015
292, Sash Cord Irons
210, 220, Organ Rollers, Sash Locks and Props
225, Window or Sash Lifts30
227, 227, Drawer, Picture and Shutter Knobs40 228, Shutter or Sash Knobs
229, 230, Sash Lifts
232-235, Shutter Bars
Nos. 754 733 738 741 1724 742
Nos. 747 750 755 1747 1750
\$3.75 3 00 3.75 11.25 10.50
247, OK Balls. 50 248, 249, Barn Door Hangers, Nos. 3 to 8, Nos. 15
to 20 and Nos 71 to 74
11 to 14 and Nos. 51 to 64
250, "Pulls, change list, No. 8, \$2.20 65 251, "Rail, change list, No. 3, \$3,0230
251, " Stays
236-240, Sash Fasteners, change list
256, 257, Thimble Skeins and Pipe Boxes, Screw Bolts and Wrenches
257, Wagon and Cart Boxes
254, 255, Grindsone Fixtures and Friction Rollers
3373

250, Bench Screws and Handles, change list...331/4 within 30 days from date of invoice, or 6 per cent. if remitted within 10 days.

P. & F. Corbin, New Britain, Conn., have issued a revised discount sheet, to apply to their illustrated catalogue of 1881, under date of the 11th inst.

The Reading Hardware Co., Reading, Pa., and No. 81 Reade street, New York, have issued, under date of the 11th instant, the following revised Discount Sheet to apply to their 1881 Catalogue and Price List. These their 1881 Catalogue and Price List. These Nos. 21 22 23 24 24 250,000 tons for delivery next year at \$55 at tidewater. For near-by delivery considerably higher figures are easily obtained, but it is difficult to find sellers whose product is not fully engaged for many months to come. In Iron Rails no new business is reported, and we quote them nominally, \$48 @ \$49.

Old Rails.—The inquiry for Old Rails is light, and no transaction worthy of mental products of the 11th instant, the following revised Discount Sheet to apply to their 1881 Catalogue and Price List. These Nos. 20 25 4 \$1.40 6.40 2.55

DISCOUNT SHEET FOR READING HARDWARE COM-

Scotch Pig.-The market has been quiet during the week, with a fair business doing and prices steady. No change has taken place in quotations, which are the same as last week, viz. :

Gartsherrie, alongside, Glasgow......55/ Eglinton Lighterage from Ardrossan to Glasgow is 2/@ 2/6 per ton.

Scrap.—There have been but small sales, with offerings moderate. Prices are firmer.

We quote Wrought, £3. 15/.

IRON.

IRON.

American Pig.—The dullness that has recently prevailed in the Iron market has reacted, and the condition of affairs this week is decidedly encouraging. The amount of business that has transpired since our last writing has been very large, included in which are sales of 15,000 tons Thomas, in equal proportions of Nos. 1, 2 X and 2 Foundry, at our quotations. In other brands considerable business is said to have transpired, but operators are inclined to be reticent and it is difficult to obtain full particulars. A very satisfactory feature of this revival is found in the fact that all of the Iron that is changing hands is going direct to the consumer, and the murket is apparently free from anything like a speculative element. We quote No. I Foundry, \$24; No. 2 X Foundry, \$21.50 @ \$22, and Gray Forge. \$20. (Descioually we have while the shipments during the speculative delement. We quote No. I Foundry, \$24; No. 2 X Foundry, \$21.50 @ \$22, and Gray Forge. \$20. (Descioually we have while the shipments during the speculative delement. We provided that the shipments during the speculative delement. We quote No. I Foundry, \$24; No. 2 X Foundry, \$21.50 @ \$22, and Gray Forge. \$20. (Descioually we have while the shipments during the speculative delement.) dry, \$24; No. 2 X Foundry, \$21.50 @ \$22, and Gray Forge, \$20. Occasionally we hear while the shipments during June were 515 of sales in small lots of standard brands at tons from Straits and 725 tons from Austraconcessions from the above-named figures, but as such are usually from second hands and could not in all probability be duplicated, they have little or no effect in establishing a precedent of values.

Scotch Pig .- The tone of the market is firm, but the demand for the foreign article has been light during the week. Sales are reported of a few hundred tons, in small lots, of assorted brands at our quotations, and 200 tons of Eglinton at \$19-a price considerably below the market, but which is said to have been accepted rather than place the Iron in store. The representatives of the makers of this brand have, we are informed, received instructions not to sell for less than \$21. We quote : Eglinton, \$21; Carnbroe, \$22.50; Coltness, \$23.50 @ \$24;

ably higher figures are easily obtained, but it is difficult to find sellers whose product is

light, and no transaction worthy of men-tion has come to our notice during the week. We quote nominally Ts, \$26.50, and Doubles, \$27.50.

Scrap.-We quote No. 1 Wrought, \$27

undergo any material alteration, the visible stock on July I being 59,936 tons, against 59,978 tons on June I. Setting apart the period of the great depression of 1879, statistics also show that there is a less actual stock now than on any previous period when the price of Chili Bars was as low as is now the case, and in many instances when the stock was much heavier than at present the price was also in advance of that now ruling. It is also interesting to note that the only time since 1879 that the stock has been as Lighterage from Ardrossan to Glasgow is 2/@ 1/2/6 per ton.

Bessemer Pig.—The demand is steady and prices firm. We quote lots of equal portions of Nos. 1, 2 and 3, 57/.

The demand is steady are returns showed it to be 58,577 tons, at which time the price of Bars was £61, and although prices during that period have been lower Manufactured Iron.—The market is fairly active. Prices are steady. Best Staffordshire Bars are quoted £7.

Steel Rails.—A very large business has been done in Steel Rails and quotations are firmer. Ordinary sections are quoted £5. 15/

@ £6. 5/,
Iron Rails.—Prices are steady under a steady demand. We quote Welsh, £5 @ Bottoms, 29¢; Braziers, according to size, 28¢ @ 34¢; Circles, 31¢ @ 34¢; Segment steady demand. We quote Welsh, £5 @
£5. 5/.
Old Rails.—The offerings have been moderate and sales fair. Prices are firmer. Old
Tees are quoted £4. 7/6.

Bottoms, 29¢; Braziers, according to size, 28¢ @ 34¢; Circles, 31¢ @ 34¢; Segment Sheets, 31¢; Fire-box Sheets, 28¢; Sheathing, 20¢, and Bolt Copper, 28¢. London per cable: Chili Bars, £59. 10/, and Best Selected, £66. Export of Copper from the United States during the first eleven months of the fiscal year ended June 30 last, 3,259,130 pounds, against 4,187,120 in 1880;

> Tin.-Our market since our last report tons from Strate and 725 tons from Austra-lia. The stock of all kinds of Tin in Amer-ican ports shows an increase of 445 tons, amounting on June 30 to 3195 tons, against 2750 tons on May 31. A public sale of 23,600 slabs Banca is just announced for the 27th inst. at Amsterdam. Tin Plates—Have been quiet and steady; although the demand has been rather improving latherly wires rehas been rather improving latterly, prices remain stationary. We quote at the close, large lots, ordinary brands, per box: Charcoal Bright, \$5.25 @ \$6.25; ditto Ternes, \$5.25 @ \$5.50; Coke Tin, \$5 @ \$5.10, and ditto Ternes, \$5. Liverpool reports per cable a firm market on the basis of 15/6 @ 16/for Coke

import, 689, 129 pounds, against 5,239,002 last

year.

Lead .- Common Domestic Lead evinces a considerable degree of firmness; a few hundred tons sold at \$4.75 @ \$4.90, and small lots as high as 5¢. We quote to vard the close, 4½¢ @ 5¢. This rise is due to the active consumptive demand and the scarcity Glengarnock, \$22.50; Coitness, \$23.50 @ \$24; Glengarnock, \$22.50 @ \$23, and Gartsherric, \$23 @ \$23.50.

Sales are reported of 1500 tons Middlesboro' No. 3, in lots, at \$18 @ \$19.

Rails.—The demand for Stoel Rails continues active, and sales are reported of 20,000 tons for delivery next year at \$55 at tidewater. For near-by delivery considering the formula of the formula of the same process indulged in by competing lines, it can, at present, be brought here cheaper than usual. "London, July 9.—This market remains dull, the demand being particularly limited, notwithstanding that the present low prices appear very favorable to ent low prices appear very favorable to buyers." Manufactures are quoted at follows: Sheet Lead, 7½¢; Lead Pipe, 7¢. Tin-lined ditto, 15¢; Block Tin ditto, 35¢ Drop Shot, 6½¢.

Spelter and Zinc.-Common Domestic Spelter is firmer at 5¢ @ 5½¢; the demand it not yet very active, but the prospect is a promising one. Nothing transpires in Silesian; advices from Europe remain very encouraging. "London, July 9.—This mar-ket remains void of activity, and there is but little disposition manifested on the part of buyers to make purchases, although prices here are still said to be much under those ruling on the Continent."

Antimony-Remains quiet and unaltered, at 141/2¢ for Cookson; other brands in pro

FOREIGN TRADE MOVEMENTS.

The following is a summary of the foreign trade movements.

IMPORTS For the week ended July 22:

Total...... \$7,407.030 \$9,568,477 \$6,168,441,
Prev. reported, 231,088,650 277,628.091 108,036,408 Since Jan. 1... \$238,495,686 \$287,196,568 \$174,804,821 Included in the imports of general mer-

chandise for the week were articles valued

902 4.000 38.492 528 34.273 400 124.104 F.818 52.20 105.198 13.430 43.800 5.486

Kastembeim Type Mach

Co.
Machines, cs., 9
Lee Jas. & Co.
Pig. tons aco
Mason John W. & Co.
Wire rope, coils, 2
Montell F. T. & Son,
Old iron, tons, 8
Old iron, bbls., 9
McBride J. P.
Scrap, tons, 100
McComb J. J.
Cotton ties, bdls.,
17,939

17.939

Order.
Tin sheets, cs., 34
Tin, ingots, 600
Tin, bdls., 5
Tin, bdls., 5 Tin, slabs, 8eo

Tin and terne plates, bxs., 1101

Scrap brass, pcs., 346 Quicksilver, bottles, Lead, pigs, 826

Winter & S

| I. r. gds., cse. 1 118 | Sew. ma., cs. 15 | Hdw., cs. ... 30 | Ptlm., gals. 21,3150 25,578 | Nalls, bxs. ... 15 | Sew. ma., cs. ... 4 | Ptlm., gals. ... 8000 960 | Ptlm., gals. ... 3790

Pumps, pkge. r 80 Sew. ma., cse. r 52

Sew. ma., cse. r Prluu, gals. 17,487 Yel. metal cse r Hdw., cs. 37 Sheet lead, pks 3 Iron, bdls 15 Mf. iron, pkgs 7 Nails, kegs. 49 I. r. gds., cse. r

Mf. iron, pkgs.... Iron, pkgs.... Nails, kegs... Nails, bxs... Ptlm.. gals... Hdw., cs....

Ag. imp., pgs. Tacks, cs.... Venesuela.

Platina		634 EX	KPORTS	CC
Percussion caps Saddlery	I4 I,	173 771 347 Bremen.	Africa.	The scarcity of ve
Steel Spelter Silverware	3,	Quan. V	al. Ptlm., gals. 88, 100 \$9,7	
Tin, boxes Tin, 4402 slabs, 446,990	7,308 444	Napht., gla. 121,014 9,	680 Napht., gals. 4,000 5	o up in coal trade cir
Wire	1,003	593 Mach'y, pkgs. 78 2,	Mach oil, cs. 123 6	moves on smoothly.
	the imports of leading with previous dates:	Ag. mp., pkgs 23	Nails, cs 51 2	and dealers contemples as well as the pros
For	the 29 weeks Same	Ptlm., gals.351,742 29,	759 Tacks, cs 12	degree of satisfaction
	ek. of 1881, time 18	Rotterdam.	Bells, pkgs 4	66 harmonized their in
Hardware, pkgs Iron, R. R., bars 18,	6 638 6 166 217,087 515,0	41 Mf. iron, pkgs 9	Hdw., pkgs2087 35.6 Brake fixts.,cs 23 3,2 88 Ptlm., gals70,080 9,91	18 are graduated to the
Lead, pigs 1. Steel, pkgs 30,	702 558.835 449.1	Pumps, pkgs. 3	38 Ag. imp., pks. 106 2,59 Mf. iron, pkgs 202 3,70	turbance in any qua
	308 843,519 835,9	Hill ore, tons. 107	50 Pumps, pkgs. 10 45	divergent, and in son
	rs of specie.	Ag. imp., pkgs 6	65 Trucks, cs 8	3 that a change in pri
For the week end		Hdw., cs 15 4	British Possession	advance of 10¢ or 20¢
Previously reported		91 Ptlm., gals 72,142 6,0	67 in Africa.	sidering the question
Total since January 1,	1881 \$6,500,7	Gefte. Ptlm., gals.135,600 10,5	Mf. iron, pkgs 102 2,53 00 Sew. ma. cs 2 2	Boston Commercial B
Same time in 1880 Same time in 1879		Wiborg, Rus.	Hdw., pkgs 459 4,11 Ag. imp., pkgs 532 10,35	4 firmer feeling has b
Same time in 1878 Same time in 1877	21,141,0	19 Dutch West Indie	00 Ptim , gals, . 32,700 5,31	Coal trade within a
Same time in 1876 Same time in 1875	59,912,9	9 Ptim., gals4,398 5	56 Canada.	confidence born of th
Same time in 1874 Same time in 1873	37,293,3		Steel rails2843 34,237 United States of Co-	tom prices have been
Same time in 1872	LUSIVE OF SPECIE.	mi. mon, page o 3	33	be sufficiently well-fou
For the week ende		Pumps, pkgs. 2 Hamburg.	Mf. iron, pkgs 310 2,650	have lately been delay
18:	79. 1880. 1881.	Hdw., cs 94 4.3. Valves, bxs 37 1,3		York and Philadelphi
Total \$6.748 Prev. reported 169,77	8,319 \$8,683,213 \$7,463,1. 8,614 216,152,520 206,244,7	Mf. iron., pkgs 4 3	Revolvers, cs. 3 611	wait no longer, but a
Since Jan. 1 \$176,520	5,929 \$224,835,733 \$213,707,8	Sew. ma., cs., 259 5,8		quite rapidly."
-		Met. g'ds., cs. 1 10 Mach'y, cases 35 3,2	Tacks, cs 3	These views are co
IMP	ORTS	I. R. goods, cs 0 40 Springs, cs 2 23	Zinc, casks 3 108	which says the orders
	, Steel and Metals int	Dutch East Indies.	Zinc, casks 2 86	seems now to be a co
	rk, for the Week endin	Ptim., gals. 387,670 48,81	Cartridges, cs 35 619	that the harmony of th
July 27, 1881:	Panama R. R. Co.	Ptlm , gals. 129, 129 11, 18	Clocks, pkgs 13 353 Nails, cs 5 101	is not to be disturbed for and as the result of this
Barthell A. A. E.	Old railroad iron.	Stettin. Ptim., gals.299,702 23,08	Nails, kegs 6 37	the market evenly b
Ironware, cs., 2 Baeder, Adamson & Co.	Parker A. B. Wire rods, lots, 377	Helsenborg.	Locomotive 1 4,050	ther delay "
Pkgs., 21	Pierson & Co.	Ptlm., gals. 143,074 11,44	Carbines, cse. 1 180	The principal diffic
Baker, Pratt & Co. Cases, 5 Boker Hermann & Co.	Rods, pkgs., 335 Sheet, bales, 454 Perkins & Choate,	Pumps. pkge. 1 3 Clocks, bxs 25 45	Buckles, case. I 128 Shot, bag I 30	
Pkgs., 96 Bloomfield J. C. & Co.	Cases, 375 Prosser Thos. & Sons,	Mf. iron, pkgs. 2 15	China.	are, to Boston, \$1.30;
Mach'y, pkgs., 41	Wrought tubes, bxs.	Dilma cele as 2 ana ve 46	4 Ptlm., gals. 255,000 29,963	@ 90¢. Quotations a Lehigh, Lump, \$4.40
Mach'y, pkgs., 41 Curley J. & Bro. Cutlery, cks., 3 Codd H. & Co.	Roebling's Sons J. A.	Liverpoot.	Bullets, case. 1 40	Egg and Stove, \$4.25
Mach'y, cs., 10 Delamater C. H. & Co.	Rods, pkgs., ro Sanders Bros.	Mf. iron, pkgs 23 45	S Cremon.	\$3.75 @ \$3.90 for Lum sizes, \$3.90 @ \$4.50. I
Mach'y, pkgs. 5 Degrauw, Aymar & Co.	Pig, tons, 50 Williamson Jas. & Co.	Sew. ma., cs. 203 4,96 Hdw., cs. 170 4,62 Clocks, bxs. 381 6,86	Central America.	still quoted \$3.25 @ \$
Cases, s	Wood, Niebuhr & Co.	Revolvers, cs. 1 41	Mf. iron, pkps ava a cov	and at \$4.50, at New said about steamers cos
Dolge A. Cases, 4 Downing, Sheldon &	Rods, coils, 617 Order,	Ag. imp., pkgs 24 74 Ag. imp., pkgs 99 3.45	Wails Bass 1830 289	but this is believed to
Co.	Rails, 779	Ptim., gais 378,750 30,300 Mach'y, 08 17 2,41	Revolvers, cs. 3 150	limited extent. As lighter freights out from
Mach'y, cs., 12 Dreyfus, Weiller & Co.	Rods, pkgs., 9528 Old rails, tons, 649	Pumps, cs 15 99 Copper, bars. 17 34	! Ag. imp., pkgs 2 98	quently take enough co
Field Alfred & Co.	Old rails, kilos., 303,	Alonaon.	Mach y, pkgs. 6 284 Tin plates, bxs 20 120 Iron, pkgs 8 78	trip, and buy less on the The Schuylkill region
Cases, 40 Casks, 2	Bars, 5282 Wire rods, bdls., 192	Hdw., pkgs 106 3,38	Uruguay.	July 16, produced 165,1
Chains, cks., 25 Folsom H. & D.	Wire rods, tons, 100 Mang'nese, hhds., 200	Mach'y, cs 26 2,72 Ag. imp., pks. 93 5,11	Con whools	an increase of 85,973 to week, and an increase o
Cases, 31 Fletcher W. H. & Co.	Spiegel, tons, 750 Old Ecrap, tons, 583%	Clocks, bxs 155 3,913 Bayonets, Cs. 4 15 3,000	Naphtha, gals 475 75 Ptim., gals, 67,000 8,170	pared with the correspondent
Pkgs., 19 Friederichs Hugo,	Old flange railroad,	Nails, Cs 4 60	Ag. imp., pgs. 1700 34.811	year. The production the week amounted to
Chains, es., 5 Godfrey Chas. F.	Pig, tons, 540 Tons, 250	Pumps, pkgs. 8 496 Hdw., cs 68 966	Clocks, boxs 46 1.000	crease of 290,000 tons o
Godfrey Chas. F. Arms, cs., 7 Graef Cutlery Co.	Specular, kilos.,250,	Ag. imp., pkgs 3 xôi Clocks, bxs 26 400	Ptg. mtl., pgs 20 140	foots up 13,470,779 to
Cutlery, cs., o	Steel	Newcastle.	Mf. iron, pkgs 25 294 Mach'y, pkgs. 11 258	1,947,018.
Hartley & Graham, Arms, cs., 30	Abbott Jere. & Co.	Mf. iron, pkgs 12 375 Leith.	Nails, kegs 23 375	The official accountant
Jex Wm. & Co. Mach'y, pcs., 91 Mach'y, bdle., 1	Cases, 22 Baring Bros & Co. Crop enus, tons, 500	Ag. imp , pkge 1 65	Ptlm., gls 1, 361, 187 11, 100	somewhat in form fro
Tanks, 25 Bolts, kegs, 2	Brown Bres. & Co.	Dublin.	Meatos.	ments, is as follows:
Moss F. W.	Wire rods, rings, 336 Brown Wm.	Napht., gls. 12,500 1,000		Philadelphia and Reading.
Files, cks., 6 Merchants' Dis. Co.	Bdls., 128 Carey & Moen,	Ptim., gals.119,100 9,528	Ag. 1mp., pgs 2 56	Lehigh Valley
McCoy & Saunders,	Bessemer wire rods, bdis., 218	Ptim., gals. 160,734 13,800	0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	Delaware, Lackawanna az
Case, 1 Pkgs., 3 McKesson & Robbins,	Bes'mer rods,coiled, bdls., 272 Drexel, Morgan & Co.	Limerick. Ptlm., gals.244,800 19,584	Natis, kegs 10 120 Mf. iron, pkgs 144 3,190	Western Delaware and Hudson Can Co
McKesson & Robbins, Cases, 4 McIlhanney W. H.	Blooms, 2790	Glasgow.	Mach'y, pkgs. 207 29,475 Steam launch 1 2,000	Donneylvania P P Co
McIlhanney W. H. Sew. mach., cs., 2	Mayer. Strouse & Co. Cases, 40	Mach'y, pkgs. 4 620		Pennsylvania Coal Co New York, Lake Erie an
Sew. mach., cs., 2 Moore's Sons J. P. Cases, 2	Mich, Central R. R. Rails, tons, 4500 Moss F. W.	Ag. imp., pgs. 3 173 Mach'y, cs 4 400	Sew. ma., cs., 44 539	Western
Mount Jas. Casks, 5 Mulholland, Hickox &	BdIs., 55	Sew. ma., cs 360 6,000 Hdw., cs 25 721	Firearms, cs. 15 6,143	Increase for the six
Co.	N. Y. Central R. R.	Clocks, bxs 136 1,990 fron rolls, cs. 7 1,025	Argentine Republic.	tons, or 20.9 per cent
Mach'y, cs., 4 Rogers Henry,	Naylor, Benzone & Co.	Mf. iron, pkgs \$ 588 Dunkirk.	Cutlery, cs 14 420	shows an increase both the half year. The stoo
Cases, 8 Sloane & Co.	Wilson J. W. & Co.	Ptlm., gals70,483 4,988 Napht., gls80,826 6,870	Ptlm., gals. 15,000 1,950 Ag. imp., pgs. 468 9,611 Hdw., pkgs 435 9,258	tide-water shipping point 1881, was 598,565 tons.
Fron mills, box, z Scoville Mfg. Co.	Old springs, 4 Order,	Gibraltar.	Sew. ma., cs 355 0,439	1001, was 590,505 tons.
Case, r Schoverling, Daly &	Blooms, 1572 Bars, 2	Cioeks, bxs 10 150 Ptlm., gals23,500 2,650	Mf. iron, pkgs. 291 995	OLD METALS, PAR
Gales, Arms, cs., 27	Case, 1 Bdls., 189	British North Amer-	Clocks, bxs. 54 2,986 Fire engine . 1 1,300 Mach'y, cs 6 300	The purchasing prices
Cases, 15 Simmons Hdw. Co.	Rail ends, tons, 762	Hdw., cs 23 597	Carbines, cs 3 566	are as follows:
Arms, cs., 3 Thompson John,	Steel wire, cs., 6 Bands, 348	Iron ore, tons. 38 140	Hayti.	Copper Bottoms
Cases, 2 Vought Isaac & Co.	Rails, 768 Rails, old, tons, 205	Pig tron, tons 75 2,100 Mech'y, pkgs. 80 4,827 Nails, bws 7 33	Ptlm., gals9120 1,134 Ag. imp., pgs. 23 352	Brass, heavy
Machinery castings, pkgs., 13	Metals.	Ptlm., gals 20,000 12,113 Mf. iron, pkgs. 120 855	I. r. goods, cs. 5 115 Nails, kegs 31 105	Brass, light Composition, heavy Lead, heavy
Ward Asline, Cases, 5	Baring Bros. & Co. Tin plates, bxs., 370	Bilbao.	Mf. iron, pkgs 53 603 Iron, pkgs 16 71	Tea Lead
Hdw. Co.	Tin plates, bxs., 370 Coddington T. B. & Co. Tin plates, bxs., 90	Ptim. gals67,200 7.050 Tarragona.	Sew. ma., cs. 33 344 Hdw., cs 52 705	Zinc Pewter, No. 1
Cutlery & hardware, pkgs., 28	Empty cartridges,	Ptlm., gals.158,845 14,354	Tin, bxs 2 13 Ircn safe 1 50	Pewter, No 2
Whyte Alex. Case, 1	Dickinson, Van Dusen	Ptim., gals. 197,214 15,598	Arms, cs 66 4,552 Clocks, cs 3 15	Stove Plate
Winchester Rep. Arms Co.	& Co. Antimony, cks., 17 Erie Dispatch Co.	Havre.	Cutlery case y so	Machinery do
Cases, 3 Witte J. G. & Bro.	Tin plates, bxs., 1000 Folsom H. & D.	Ptim., gals. 259,487 22,000 Cutlery, C88. 1 22	Brazil.	The prices current for follows:
Guns, cs., 12	Gun caps, cs., 3 Jex Wm. & Co.	Sew. ma., cs., 252 3,000 Mach'y, pkgs. 5 900 Purang pkgs. 5 900	X otto: , Sero. ra/1322 a2124/	
Razors, case, 1	Brass cocks, box, 1 Lamarche H.	Pumps, pkgs. 1 186 Mf. iron, pkgs 3 295		Canvas, Linen
Order, Mach'y, pkgs., 17	Zinc, cs., 26	I. r. gds., cs 4 433 Hdw., cs 9 46	Napht., gals4750 750	White, No. 1
Mach'y, pcs., 67 Anvils, 46	Meyer G. A. & E. Zinc oxide, bbls., 500 Montel F. T. & Son,	Marsoilles.	Mf. iron, pkgs 16 309 Presses 2 90 Mach'y, case, 1 255	Seconds Soft Woolens
Cases, 15	Old brass, cask, r Old brass, bbis., 14	Ptlm., gals. 101,373 8,704 Mf. iron, pkgs 107 1,374	Constantinople.	Mixed Rags
Iron.	Moore's J. P. Sons,	Ag, imp., pkgs 5 385 Napht, gals. 52,591 4,926	Ptlm., gala.316.767 35,568	Rentucky Bagging
Baring Bros. & Co. Pig, tons, 452 Clark W. J.	Gun caps, cs., 8 Noel A. Tin plates, cs., 6	Valencia.	Hdw., cs 67 1 545	Rook Stock Newspapers
Pigs, tons, 230	Nevada Bank, Tin, slabs, 820	Clocks, bxs 7 75 French West Indies.	Sew. ma., cs. 3 44	Waste Paper and Scraps Kentucky Bale Rope
Crocker Bros. Pig. tons, 465	Phelps, Dodge & Co. 1	Ptim., gais5000 608	Ptlm., gals., 93,700 7,700	
	Tin plates, bxs., 4750 Pfizer Chas. & Co. Quicksilver, bottles,	Canary Islands.	Hdw., cs 3 40 Windmills, cs. 10 267 Mach'w. cs. 4 60	PHILADEL
Brexel, Morgan & Co. Specular, kilos.,356,-	Rendle A. E.	Hdw., cs 65 2,831 Needles, case. 1 9	Mach'y, cs . 4 60 Clocks, bxs 16 216	Office of The Iron Age, 220 PHILADELPH
Ore, tons. 336	Zinc, cs., 6	Pilm., gals6232 692 Clocks, bxs 3 56	Messina. Ptlm., gals. 132,000 15,000	Pig Iron.—There is
Mdse., cs., 4	Semon, Bache & Co. Tin. cs., 18 Smith James Lee	I. r. goods, cse 1 4 Barcelona.	Trieste.	for special remark; the
Cloth mach., cs., 4	White lead, pkgs.,	Guns, cse 1 25	Ouba.	larger, and prices are st known brands there is
Irwin Richard, Pig. tons. 200 Jex Wm. & Co.	Willett & Hamlin, Sheath. met., cs., 180	British West Indies.	Mach'y, cs 49 937	the general feeling indic fidence. This is about a
AND THE PERSON NAMED IN COLUMN	The state of the s	Pumps pkge v Ra	A Land do Jon	THE PERSON NAMED IN COLUMN TO

The scarcity of vessels to Eastern ports, and the question of an advance in prices about August 1st, are really the only topics up in coal trade circles. In Anthracite a good fair business is doing, and everything moves on smoothly. As a whole, operators and dealers contemplate the passing season, as well as the prospects, with a certain degree of satisfaction. They have so far harmonized their interests that there is no satisfactors with another and supplies. conflict one with another, and supplies are graduated to the demand without disturbance in any quarter. In regard to the much talked-of advance, feelings are so divergent, and in some quarters so positive that a change in prices still remains doubtful—if there is any, it will be limited to an advance of 10¢ or 20¢ in Chestnut and Stove.

Consumers in the Eastern states are considering the question "when to buy," the Boston Commercial Bulletin remarking that it is "a matter of general interest that a firmer feeling has been developed in the Coal trade within a week or two, and that buyers are beginning to purchase with a confidence born of the conviction that bottom prices have been reached. The present feeling of confidence, however, appears to be sufficiently well-founded, and dealers who have lately been delaying their purchases in the hope of lower freight rates from New York and Philadelphia are now disposed to wait no longer, but are chartering vessels more freely and are filling up their yards quite rapidly."

These views are consistent with those of the Pottsville, Pa., Journal, of the 22d inst., which says the orders for delivery in July are more than will be filled, and adds, "It seems now to be a generally accepted fact that the harmony of the producing interest is not to be disturbed for this year at least, and as the result of this harmony is to keep the market evenly balanced and prices steady, there is nothing to be gained by fur-ther delay." ther delay.

The principal difficulty experienced by New York agents is in the scarcity of vessels and stiffening rates of freight, which are, to Boston, \$1.30; to Providence, 80¢ @ 90¢. Quotations are unchanged, viz.: @ 90¢. Quotations are unchanged, viz.: Lehigh, Lump, \$4.40 @ \$5.25; Grate, Egg and Stove, \$4.25 @ \$4.45; Wyoming, \$3.75 @ \$3.90 for Lump and Grate; other sizes, \$3.90 @ \$4.50. Bituminous Coals are still quoted \$3.25 @ \$3.50, at Baltimore; and at \$4.50, at New York. Something is said about steamers coaling in Nova Scotia, but this is believed to be true only to a limited extent. As steamers now have lighter freights out from Europe, they frequently take enough coal for their return quently take enough coal for their return trip, and buy less on this side.

The Schuylkill region for the week ending July 16, produced 165,192 tons of anthracite, an increase of 85,973 tons over the previous week, and an increase of 66,680 tons as com-pared with the corresponding week of last year. The production of all the regions for the week amounted to 700,000 tons, an increase of 290,000 tons over last year. The production of all the regions for the year foots up 13,470,779 tons, an increase of

1,947,018.
The official accountant's statement of an thracite tonnage for six months, differing somewhat in form from the weekly state ments, is as follows:

Philadelphia and Reading	2,925,086	2,632,231
Lehigh Valley	2,498,404	1,920,901
Central of New Jersey	1,831,409	1,514,925
Delaware, Lackawanna and		
Western	4,948,849	₹,603,#26
Delaware and Hudson Canal		
Co	2,416,238	1,260,937
Pennsylvania R. R. Co	1,033.925	728,897
Pennsylvania Coal Co	598,578	473,69x
New York, Lake Erie and		
Western	222,007	184,941
Total	11,467,496	10.312,120
Increase for the six n	nonths.	2,155,376
tons, or 20.9 per cent.		
shows an increase both fe	or the n	aonth and
the half year. The stock	of coal o	n hand at
tide-water shipping points	reported	i June 30,
-00		

OLD METALS, PAPER STOCK, &c.

The purchasing prices offered by dealers are as follows : Copper, heavy.... Copper Bottoms... Yellow Metal.... Brass, heavy......Brass, light.....Composition, heavy.......ead, heavy....... Pewter, No. 1.
Pewter, No. 2.
Wrought Iron
Light do.
Stove Plate...
Machinery do.
Grate Bars... The prices current for Rags, &c., are as

	Canvas, Linen # 1	, 3%c.	0	4 0
	White Cotton, New "	3%0.	0	
	No. 2	2%C.	0	
	White, No. I	4% C.		
	" No. 2	2% C.		
	Deconds	I C.		
	BOIL MOOIGUS	9%c.		
	Mixed Rags	ac.		
	Gunny Bagging	134C.		
	Jule Dutts	ac.		2%0
	Kentucky Bagging	43/4C.		
1	POOK STOCK	2160.		
	Newspapers	11/4 C.		
ı	waste raper and Scraps	16 C.		
ı	Kentucky Bale Rope"	4C.	0	* * * *

PHILADELPHIA.

Office of The Iron Age, 220 South Fourth St., Philadelphia, July 26, 1881. Pig Iron.-There is no change calling or special remark; the demand is somewhat arger, and prices are steady. For the best known brands there is more inquiry, and the general feeling indicates increasing confidence. This is about all that can be fairly said, although some are inclined to talk prices higher. The outlook is certainly enprices higher. The outlook is certainly encouraging, but we see no immediate reason to anticipate any change of that kind. The demand is large, and of that general character which embraces the entire market, so that, although there is no scarcity of any that, although there is no scarcity of any that, although there is no scarcity of any accept for winter work; some are asking still accept for winter work; some are asking still \$23.50 @ \$24 for No. 1. Sales of Coldinate No. 1. Sales of Coldinate No. 1. Sales of Coldinate No. 2. Sales of Coldinate No. 2. Sales of Coldinate No. 2. Sales of Coldinate No. 3. Sale kind of fron, neither is there any accumula-tion. Some brands sell more readily than others, at relatively much higher prices, but consumers think they get the difference in deep quality. Under such circumstances, how-

ever, it is difficult to quote prices with exactness, as one may find it hard to sell at over \$23 50, while another may obtain \$25 to \$25.50 with much less trouble. This in fact is the exact position of the market. Two or three very favorite brands of No. I Foundry Iron are in demand at \$25 @\$25.50, and are under contract for some time to to come. Ordinarily \$24 @ \$24.50 is obtained for good brands, but for spot cash, in some instances, sales have been made as low some instances, sales have been made as low as \$23.50, though transactions of that kind are almost as exceptional as those at \$25.50. No. 2 Foundry is rather weak; supplies are larger in proportion than usual, so that prices are irregular. Sales have been made at \$20.50 @ \$22, with ample offerings at \$21 \$21.50. Consumption is again on the increase, and during the next three months will probably be larger than ever. The supply is adequate, however, and buyers supply is adequate, however, and buyers show no desire to make contracts in excess of their needs. Mill Irons show greater activity, and with but few exceptions the furnaces have orders for quantities about equal to the stocks they carry. The best brands of Gray Forge are quickly taken at \$22, other descriptions at prices from \$20 @ \$21.50, with most business at the inside figure. Holders are hoping to get an advance on low grades; prices are said to be at or below cost, and with a better market for Finished Iron, furnace men are inclined to stiffen up. There is nothing to warrant the expectation that any advance can be maintained, however, and beyond a little more firmness no change is probable.

Foreign Iron—Is firm, and in nearly all cases higher prices are asked. A 1000-ton lot of Middlesboro' No. 3, sold during the week at \$17.50, and small lots at \$19 and somewhat higher prices, but for shipment a decided advance is asked. Bessemer Iron is quiet and firm. Buyers offer \$23 for fall shipments, but sellers appear to be firm at \$24. The leading consumers are pretty well supplied for the present, and are not inclined to pay the full advance asked. Sales of 10,000 tons are mentioned for St. Louis account, but prices so far have not been made public. Scotch Iron is selling in a retail way at about \$21 for Eglinton, and \$23 for Carnbroe and Gartsherric.

Blooms.—The demand is very active and prices are higher, as follows—\$65 @ \$67.50 for Cold-blast Charcoal; \$57.50 for Run-out Anthracite, and \$47.50 @ \$50 for Scrap

Muck Bars .-- There are inquiries for large lots, and holders are firm at about \$39 at mill. A good many sales were made last week at \$38.50, but it would be difficult to place an order now at less than \$39.

Bar Iron .- Business is exceedingly active, and the chief anxiety is to secure prompt delivery rather than concessions in prices. The mills are full to their utmost capacity, and if orders keep up as they have of late an advance of a tenth cannot be long delayed. A general advance was made last week for lots from store, and 2.5¢ is obtained without difficulty. The mill price is 2.4¢ firm, and concessions are entirely out of the question. The demand comes from all classes of trade. so that manufacturers are not depending upon any special contract. Consumers are increasing their orders somewhat, as their requirements are larger, but the activity is due more to the number and variety than the importance of any single transaction. This denotes a most satisfactory condition of business, and manufacturers anticipate its continuance during the balance of the

Structural Iron.-It is difficult to say anything beyond what has been said under Bar Iron. The demand is large, and manufacturers as full of work as they desire to be. Contracts are usually for larger quantities in this line than for other descriptions of finished Iron, and some lots running up into several thousand tons have been taken since last week. There are other inquiries in the market and the outlook denotes a period of increasing activity. Prices are unchanged, but very firm, at 2.6¢ for Angles, 3.1¢ for Tees, 3.3¢ for Beams and 3.4¢ for Channels.

Plate and Tank Iron.—This branch is robably as much crowded as any in the trade. and orders amounting to two or three thousand tons are being held over until they can receive attention. We cannot learn that any one is being put to serious inconvenience for parted to be very light and the dependence of the control of the west were respected to be very light and the dependence of the control of the west were respected to be very light and the dependence of the control of the west were respected to be very light and the dependence of the control of the west were respected to be very light and the dependence of the control of the west were respected to be very light and the dependence of the control of the west were respected to the very light and the dependence of the control of the west were respected to the very light and the dependence of the west were respected to the very light and the dependence of the west were respected to the very light and the dependence of the west were respected to the very light and the west were respected to the very light and the west were respected to the very light and the west were respected to the very light and the west were respected to the very light and the west were respected to the very light and the very light an want of material, but there is some anxiety ported to be very light and the demand want of material, but there is some anxiety to provide for future requirements, and this probably has led to the pressure which is now felt. The demand comes from all parts of the country, and of late a considerable Office of The Iron Age, 77 Fourth Avenue, 1 business has been done with the Lake cities. business has been done with the Lake cities. Prices are firm as last quoted: 3\$\psi\$ for Tank Iron, 3\$\fomega \epsilon\$ for Refined, 3\$\psi \epsilon\$ for Shell, 4\$\fomega \epsilon\$ for Flange, and 5\$\fomega \epsilon\$ @ 6\$\epsilon\$ for Fire-box.

Sheet Iron,-The demand shows no abatement, and orders have been entered which will employ the mills to full capacity during the next three or four months Anticipating the usual small trade which drops in later in the season, manufacturers consider they are full during the entire balance of the year. There are a good many orders waiting to be placed on first opportunity, but other than regular customers may have to wait some time before they ers receive attention. Prices are firm as fol-

Ommon Sheet, No. 26 to 28.

Common Sheet, No. 22 to 25.

Common Sheet, No. 16 to 21.

Best Refined % & % & advance on the above.

lest Bloom Sheets, No. 26 to 28.

Lest Bloom Sheets, No. 26 to 28.

Lest Bloom Sheets, No. 16 to 21.

Lest Bloom Sheets, No. 16 to 21. Sest Bloom Sheets, No. 16 to 21... Common Red Plates, 3-16 to 16... Slue Annealed, 3-16 to 16... Best Bloom Galvanized, discount.

ered for some portion of their requirements. Some heavy sales have been made during the past week, but the exact particulars have not transpired. It is believed, how-ever, that offers which were out at about \$55 have been taken to such an extent that and a trent that manufacturers have now advanced their quotations or withdrawn entirely. Reports have been circulated from New York that purchases have been made at \$53 @ \$54. The basis upon which the statement is made is probably that Steel Blooms have been imported, and that the estimated cost of the product will be \$53 @ \$54. A large amount of Steel Rails will be made from imported Blooms during the winter, and they are estimated to cost something near \$53 @ \$54. timated to cost something near \$53 @ \$54. The Bessemer companies, however, are quoting as we have said, \$55 @ \$56 and upward. August and September deliveries are nominally \$62.50 @ \$65, and very scarce. English Rails are quoted equal to \$58 @ \$62 in American currency, according to date and port for delivery, with an active inquiry, and prospects of a good deal of business being closed in the course of a few weeks. waeka

Steel Blooms.—Some large transactions have been made, and a more active business is being done than ever before. Several cargoes have been sold for shipment via New Orleans, to mills in Missouri and Colorado, and negotiations are in progress likely to result in further transactions in the same direction. Several mills in Pennsylvania have also been purchasers, and the production of Steel Rails is likely to be con-

sections are quoted at \$43 @ \$52, with quite an active demand. English Rails, from store, have been taken in one or two recent transactions, but prices have not transpired.

Railway Fastenings.—Spikes are steady at 2.75¢; Fish Plates, 2.3¢ @ 2.4¢, and Bolts and Nuts, 3.25¢ @ 3.75¢.

Old Rails.—Stocks are very much exhausted and are held by strong parties. Lots in store are quoted at \$26.50 @ \$27 for Flanges, and as they cannot be imported for less money, holders are sanguine of obtaining their price. We have not heard of any recont transactions, but the feeling is gaining ground that prices will be higher. For ing ground that prices will be higher. For some time past sales have been made at rates below what it would cost to import, but as there are now very few left, holders expect an advance, which it seems likely will be realized. The demand is not very active, however, which in some measure is due to the fact that many who used to be large consumers are now running on Steel Blooms

Crop Ends-Nominal at \$26 @ \$27. Bloom Ends .- Offered at \$26

Old Car Wheels.—Holders ask \$30 for the best makes, although sales were made recently at a considerably lower rate.

Scrap Iron.-The demand is somewhat more active, but prices are unchanged. Short and Medium sells at \$26 @ \$28; Choice No. 1 at \$29 @ \$30 and Cast at \$19

Coke.-Prices are firm, and \$1.60 on cars at ovens is said to be an inside price. The demand is active, and prices likely to be maintained.

Nails—Are in light supply, and the prospects are that they will be higher. In the meantime prices are unchanged, viz., \$2.90 at wholesale.

PITTSBURGH.

(By Telegraph.)

PITTABURGH, PA., July 27, 1881.

Office of The Iron Age, 77 Fourth Avenue, PITTSBURGE, PA., July 26, 1881.

Never, perhaps, has general business in Pittsburgh, particularly at this season of the year, been so active; manufacturers, mer-chants, builders and tradesmen of all kinds vanced, and Boiler Tubes are quoted firm at 5 % discount from list prices. There is an active demand for all descriptions.

Pig Iron.-There has been a largely increased business the past week. Sales of some 7000 to 8000 tons having been effected, and the probability is that as much more will be sold before the close of the present week, as a good many consumers are feeling around, asking for prices, etc., and will buy just as soon as they get what they want. While there has been no advance established as yet, there is, as might be expected, a much better feeling in the market, and furnacemen are now refusing bids they would have entertained a week ago. The situation in many respects is more favorable to the producer; stocks in first hands are not as large as generally supposed; the production, for various reasons, has been comparatively light for some time past. The consump-tion is large and will increase as the weather becomes cooler, so that puddlers can work to better advantage. The advices from Best Bloom Galvanized, discount. 40 Second quality, discount. 50 Second quality discount. 50 Second quality

Manufactured Iron.—The activity noted for some weeks past continues, and brokers and buyers generally report that it is almost and buyers generally report that it is almost impossible to place an order for immediate delivery at any price, as the mills are all sold ahead. Some mills have orders sufficient to absorb their entire production for from 60 to go days; and this being the case, it is not surprising that prices are strong. Merchant Bars may be quoted at 2.25¢@2.30¢, 60 days, for assorted orders, and 2.35¢@2.50¢ for all bars; Sheet, 4¢ for No. 24; Skelp, 2.50¢@2.60¢; Tank and Plate, 3.40¢@3.50¢; best brands of Boiler Plate, 6¢@654¢.

Nails.—There is an increasing demand,

Nails.—There is an increasing demand, and it is doubtful whether a round lot could be obtained at current price, \$2.75, 60 days, % off for cash.

Wrought Iron Pipe.—The demand continues active, mills are oversold and prices have been advanced. Discount on Galvanized Pipe has been reduced to 65 %, and on Black to 67½ %. Boiler Tubes unchanged, but firm, at 45 % off. Oil Well Tubing has been advanced to 21¢ per foot, net, while Casing remains unchanged at 70¢.

Railway Supplies .- There have been no sales of Steel Rails reported here for some time. Spikes remain unchanged at $2\frac{1}{4}\phi$, 30 days; Splice Bars, 2.45ϕ @ 2.60ϕ ; Track Bolts, $3\frac{1}{4}\phi$ @ 4ϕ , the latter with hexagon nuts, and the former with square.

Steel.—The mills generally are well supplied with orders, and the outlook is very promising for a good fall trade. Best brands of Refined Cast Tool Steel, 11¢; ditto Cruof Refined Cast Tool Steel, It \$\vec{c}\$; ditto Crucible Machinery, \$7\vec{c}\$; Bessemer and Open-Hearth ditto, \$\vec{c}\$\vec{ ing Steel Boiler Plate are very full of orders hence there was no difficulty in establishing the advance.

Scrap.-There is an increasing demand and prices are firmer, although without quotable change. No. I Wrought is quoted quotable change. No. I Wrought is quoted at \$27 @ \$28 per net ton for Blacksmith, and \$29 @ \$30 for selected Railway; Cast Turnings, \$14 @ \$15 per gross ton; Wrought Turnings, \$21 @ \$22, net; Old Car Springs, \$38 @ \$40; ditto Axles, \$34 @ \$36. In regard to Old Car Wheels it is difficult to give reliable quotations. There are bayers at about \$27 @ \$28 per gross ton, but holders are asking \$40. They are not as important are asking \$30. They are not as important Plate, \$2.50. an article as they used to be.

Window Glass .- There is a very good business for the season, and it is increasing.
Prices are firm, but unchanged. Discount
on Single Strength, 60 and 20 %; on Double

Coke.-There is a continued steady trade the demand appears to be sufficient to absorb the production, and prices are steady at \$1.60 per ton, free on cars at ovens for de-\$1.00 per ton, free on cars at ovens to delivery within next 30 days, and \$1.70 @ \$1.75 for small foundry orders. All quiet in the producing district. The striking miners have all resumed work, and another strike is not likely to be attempted soon.

Coal.-There was good water in the river for getting out Coal on Sunday, but owing to the difficulty in getting through the lock at the Davis Island dam, and the want of proper lockage facilities in the Monongahela River, but little over 1,000,000 bushels got out, whereas but for the drawbacks referred to, the shipments would have reached from 7,000,000 to 8,000,000 bushels.

CHICAGO.

\$teel Rails—Are in very good demand at \$63 @ \$64 for immediate delivery, while the quotation for future delivery would be about \$60. We learn of some very large orders in the market, and heavy purchases have already been made.

Iron Rails-Are in fair demand at \$51 @ \$53, according to specification.

Manufactured Iron.-The market for Manufactured Iron is strong, and prices are very firm. Stocks of standard sizes are in most cases very light, while some few have just barely enough to supply their immediate

advance in Foreign, which cannot now be laid down here under \$27 @ \$27.50 from the seaboard, as the freight from New York is \$3.60 per ton.

Muck Bar—Is quoted at \$39 @ \$41 for neutral to good Red-short. There has been considerable activity recently, some of the mills, owing to the hot weather, being unable to get out as they required, and they have been buying more or less in consequence.

Manufactured Iron.—The activity noted

Scrap Iron.—Market continues dull and demand slight. We quote: No. 1 Wrought, \$23; Forge Scrap, \$20 @ \$30; Heavy Cast, \$20 @ \$21; Stove Plate, \$13.

CHATTANOOGA.

Office of The Iron Age, Market and 8th Sts., CHATTANOOGA, July 25, 1881.

CHATTANOOGA, July 25, 1887. I
Our report that "the heated term in its greatest violence had subsided," in last week's Iron Age, was an error. The mercury has marked 99 degrees at the signal office on each of the last days of the week. Breezes and thunder showers at the close have modified our distress somewhat. Business heaten without more netwity than have modified our distress somewhat. Business has shown rather more activity than usual for the season. The disposition of holders to concede shadings in order to sell has been less marked. A good many leading articles appear to have stiffened up decidedly, and there is a sudden and unexpected scarcity in some lines, indicating the effect of stoppages of furnaces and mills and the renewal of contracts.

Pig Iron.-There is again a decided scarcity of some grades of Foundry, and dealers find difficulty in supplying their cus-tomers promptly. Stocks of other grades tomers promptly. Stocks of other grades are down to a healthy standard, and at the are down to a healthy standard, and at the present rate of consumption not likely to accumulate. We quote: No. I Foundry, \$22 @ \$23; No. 2 Foundry, \$20 @ \$21; Gray Forge, \$18 @ \$19; White and Mottled, \$16 @ \$18; Car-wheel Metal, \$38 @ \$40.

Ores.-We quote: 50 % Brown Hematite, per ton, \$2 @ \$2.75; Red Fossil, \$2 @

Miscellaneous Articles .- Old Rails are Miscellaneous Articles.—Old Rails are in rather better request, but there is no change in price. The demand is still mostly for shipment. Prices may be regarded as a little stronger. Scraps show no special life in any of the grades. We quote them at \$26 @ \$28. Wrought Scrap, \$20 @ \$25; Cast Scrap, \$10 @ \$15; Old Wheels, \$28 @ \$30.

Nails—Are dull at the nominal rate of \$3.10, with liberal discounts to large purchasers and for cash.

Manufactured Iron.-Bar is decidedly stronger than for some months at \$2.25 rates, with good prospects of an advance. The mills are full of orders and bills for Septem ber are coming in in considerable amounts. We continue to quote: Spikes, \$3.15; Track Bolts, \$4; Trestle Bolts, \$4.50; Fish

Coal.—Household supplies \$4 per net ton delivered. New contracts for manufactur-ing purposes, run of mine, could not be made below \$3.

Coke.—We quote: Furnace Coke, \$3 per ton at furnace; Foundry, 10¢ @ 12¢ per

Steel and Iron Rails .- Steel Bars, \$6; \$64 at mill; Iron, \$50 @ \$52; Small, \$57

BOSTON.

JULY 23 .- The indications of an upward tendency in the market which were noted last week continue and are more decided, and in some cases higher prices have been realized. Agents report a great demand for stoves in the Western market, in consequence of the great emigration to that sec-tion of the country. Buyers who have been holding off are coming into the market, but are unable to make contracts at rates which were current last week. Foreign Iron has touched within 2/ or 3/ of the lowest rates known for ten years. Freights have advanced CHICAGO.

Office of The Iron Age, 36 and 38 Clark Street, car. Lake Street, Cuicaao, July 25, 1882.

Pig Iron.—The Pig Iron market has been improving steadily for the past two weeks, and at present is very strong. Consumers are beginning to realize the fact that quotations have reached as low a point as they are likely to, and consequently are purchasing with much more freedom than heretofore, and placing larger orders; in fact, the demand for all classes of Iron is much better than at any time since the beginning of the than at any time since the beginning of the year. Numerous large orders, ranging from 500 to 2000 tons, have been placed durthed demand is moderate, holders appear from 500 to 2000 tons, have been placed during the past week, at prices from 50¢ to \$1 per ton higher than previous quotations; still there has been no positive advance in quotations on smaller lots, excepting imported Scotch, which is now quoted at \$27 to \$28. We quote Lake Superior as follows: Nos. 1 and 2, \$29.50 @ \$31.50; No. 3, \$32; Nos. 4, 5 and 6, \$33; American Scotch, \$25 @ \$27; Silvery Soft, \$23 @ \$25; X Crane, \$27; X X Crane, \$25; Thomas, \$25.50 @ \$28.50.

\$teel Rails—Are in very good demand at \$64 @ \$64 for immediate delivery, while last week's prices. Tank is selling at \$3.10; last week's prices. Tank is selling at \$3.10; Refined, \$3.25; Shell, \$3.75; Flange, \$4.75; Tubes are in demand at 45 % discount from list. The mills decline orders at present rates for prompt delivery. Nails are selling at \$3 @ \$3.10, though the nominal quotation is con (@ §3.10, though the nominal quotation is considerably above these figures. The Boston store prices of Steel are as follows: Best English Cast, 14¢ @ 15½¢; American ditto, 12¢ @ 12½¢; Bessemer Machinery, 5¢ @ 6¢; Crucible ditto, 7¢ @ 7½¢; Wedge and German, 7¢; English Spring and Calking, 7¢ @ yast barely enough to supply their immediate wants. The demand continues to grow for all classes of Iron. We quote Bar in store at \$2.50; rates at mill here, \$2.40 @ \$2.50. Plate, Sheet and Tank are quoted firm at \$3.50. Angle at \$3.20 rates; T at \$3.50 and Hoop at \$3.20 @ \$3.30. the opinion of many operators that, on account of the opinion of many operators that, on account of the opinion of the opinion of the opinion of the opinion of sue somewhat of the opinion of the opinio

Bar, 7ϕ ; Pipe, 7ϕ ; Sheet, $7\frac{1}{2}\phi$; Tin lined Pipe, 15ϕ ; Tin Pipe, 35ϕ . Spetter shows little change. We quote \$5.15 @ \$5.25. Small lots bring \$5.40 @ \$5.50. Sheet Zinc is in fair demand at $6\frac{1}{2}\phi$ @ 7ϕ . Tin in unchanged. We quote $20\frac{1}{2}\phi$ @ $20\frac{1}{2}\phi$ for Straits and English. Tin Plates are in moderate demand at the class prices. Straits and English. The Plates are in moderate demand at steady prices. We quote: Charcoal Bright, \$6 @ \$6.25; ditto Ternes, \$5.37½ @ \$5.50; Coke Tin, \$5 @ \$5.25; ditto Ternes, \$4.87½ @ \$5.12½.—Commercial Pulletin. cial Bulletin.

LOUISVILLE.

Messrs. GEO. H. HULL & Co., mission Merchants, report to us as follows, under date of July 22: The market has been very quiet during the past week. Prices on standard brands nominally unchanged. Consumers generally are supplied for some time to come, and are holding out of the market. We quote, for cash: FOUNDRY IRONS,

J	No. 1 Hanging Rock, Charcoal \$27.00 @ 29	.00
1	NO. 2	00.
1	No. 1 Southern, Charcoal 23.50 @ 24	,00
ı	No. 3 " 22,50 @ 23	
J	No. 1 Hanging Rock, Stonecoal and	
ı	Coke 23.00 @ 23	.50
ı	No. a Hanging Rock, Stonecoal and	
ı	Coke 21.50 @ 22	.co
1	No. 1 Southern, Stonecoal and Coke 22.00 @ 23	.00
ı	No. 2 " " " 21.50 @ 22	.00
1	"American Scotch" 22.00 @ 23	.00
I	Silver Gray 20.00 @ 21	.co
١	Scotch 24.00 @ 25	.00
ı	MILL IRONS.	
1	No. 1 Charcoal, Cold-short and Neu-	
	No. 1 Stonecoal and Coke, Cold-short	.00
	and Neutral 10.50 @ 21	.00
	No. 2 Stonecoal and Coke, Cold-short	
1	No. 1 Missouri and Indiana Red-short, 25,00 @ 27	
	No. 1 Missouri and Indiana Red-short. 25.00 @ 27 White and Mottled, Cold-short and	.00
ĺ	Neutral 17.00 @ 10	
		1,00

ST. LOUIS.

Hanging Rock, W. B.

CAR WHEEL AND MALLEABLE IRONS.

Messrs. Hoffer, Plumb & Co., Pig Iron Messrs. HOFFER, PLUMB & Co., Pig Iron and Iron Ore Merchants, 417 Pine street, write us, under date of July 23: A number of transactions for future delivery have been concluded lately, at prices corresponding with our quotations. It is hoped, though by no means certain that such will be the case, that the strength and firmness which characterizes the Manufactured Iron market will speedily attach itself to that of the Pig Mital, and render necessary a complete change in the figures which we give below as those of to-day's market:

HOT BLAST CHARCOAL.

Southern	
Ohio	28.00 @ 29.00
COKE AND COAL,	
Missouri	26 00 @ 27.00
Southern	23.00 @ 24.00
Ohio	23.50 @ 24.50
MILL IRONS.	
Cold-short	21.00 @ 22.00
Red-short	24.00 @ 25.00
CAR WHEEL AND MALLEABLE I	BONS.
Missouri	28.00 @ 30.00
Southern	35.00 @ 38.00
Ohio	27 00 60 10 00

CINCINNATI.

JULY 25.—Pig Iron.—There has been more activity in the market during the past week. It is reported by sellers that large sales of mill grades have been made during that time, to go to Pittsburgh and other points on the Ohio River above Hanging Rock, of Virginia, West Virginia, Alabama and Georgia Irons aggregating soo tone. Rock, of Virginia, West Virginia, Amounta and Georgia Irons, aggregating 8000 tons, and at prices not below \$21.50, cash, at points of destination. While prices are not weak, by any means, these reports need confirmation. The rolling mills here are practically idle and will remain so until there is firmation. The rolling mills here are practically idle, and will remain so until there is a solution that will cover the views of the mill owners and the workmen. It is said by mill owners and the workmen. It is said by the best authority here that the mills will not start on "union labor," unless upon a basis of Pittsburgh prices. Lately (last week) it has been developed that at least one of the large rolling-mill companies has been buying Irons in Cleveland, Chicago, Pittsburgh and other mills outside of this region, taking and filling orders right along and extrict and filling orders right along, and getting better profits than if produced in their own mills, if made on a basis of 5 per cent. above Pittsburgh prices. The mills of this region, it seems, are not suffering from the strike; it is only the domestic condition of the families that depend upon well-paid labor that is really suffering. Sales of Pig Iron that is really suffering. Sales of Pig Iron justify the following quotations: Hanging Rock Charcoal, \$20 @ \$27.50; Coke, \$23 @ \$24; Stonecoal Foundry, \$21 @ \$23; S. G. Softeners, \$20.50 @ \$22; Forge, \$20 @ \$21.50; Bar Iron, 2.15 @ 2.25 card rate; Scrap, 40\$ @ 75\$ for Cast; Wrought, \$1.10 @ \$1.30; Scrap Wheels, \$30 @ \$31; Old Rails, \$28 @ \$20. @ \$1.30; Scrap Rails, \$28 @ \$29.

BALTIMORE.

W. N. WYETH, Iron and Steel Merchants, 46 and 48 South Charles street, reports us the following, under date of July 25: Trade for the past week has been more active, and prices generally have advanced one-tenth of a cent per lb. The mills are full of orders and very backward in filling them. We quote list as about prices now ruling.

ruling:

Ref. Bar Iron, 1 to 6 x 1/4 to 1... \$\mathbb{B}\$ \(\) 2/4 \(\) 2/4 \(\) 1/4 to 2... \$\mathbb{B}\$ \(\) 2/4 \(\) 2/4 \(\) 1/4 to 2... \$\mathbb{B}\$ \(\) 1/4 to 4 in. wide. \$\mathbb{A}\$ \(\) 3/4 to 4/4 to

RICHMOND.

Mr. ASA SNYDER, Iron Merchant and Furace Agent, writes as follows under date of July 25: There has been no change in the Iron market during the past week. Prices are strong and business good. I repeat

Sco	te	h Pig Iron.		0.					0	0	0									\$23.00	0	26
No.	X	Anthracite	ditto		4		.0		×		n	0	*	÷	2	2	2		9.	92.00	0	25
No.																				90.00		
410.	3			0	0	0	0	0	0	0	0	0	0	0	ā		0	0	0	19.00	0	22

No. 1 Virginia Coke Pig Iron No. 3 Virginia C. B. Charcoal Pig Iron. Old Rails... Wrought Scrap, No. 1... Cast, Machinery Scrap. Cast. Machinery Scrap. 19.00 @ 2 Richmond Refined Bar Iron. @ 0 Horse Shoes, Tredegar. @ Mule Freight to New York, by sail. \$1.75 for 2240 lba.

Our English Letter.

Review of the British Iron, Steel, Metal and Hardware Trades.

(From our Regular Correspondent.) LONDON, ENG., July 11, 1891. THE OUTLOOK

is still a trifle "mixed" as regards iron and metals in general, yet there are several ameliorating circumstances in existence, as well as sundry tentative changes and move-ments, which are quite likely to assist in de-veloping a decidedly improved state of affairs. As a matter of recorded fact, there has been an unmistakable expansion of business within the past fortnight in some of the finished iron departments, several of which have experienced so notable a rush of orders that they now boast of two or three months full work ahead. I do not say that this influx has been by any means general, but it has been so in the sheet iron, galvanized has been so in the sheet iron, galvanized iron, fencing wire, and a few minor branches, and cannot possibly be overlooked by any chronicler of the time being who has an honest desire to lay before his readers the bottom facts. There is an impression that merchants who have long withheld their purchases are now quietly placing orders, in the belief that prices have lately reached "hard pan," coupled with the idea that there are signs of another upward change. At all events, the orders have been given out in signs of another upward change. At all events, the orders have been given out in the trades named, and it is confidently asserted that inquiries in other branches are indicative of reviving wants. As a whole, therefore, it seems fairly clear that the symptoms are those of a more favorable near future, with possibilities which cannot for the moment be accurately gauged, but which are counted favorable by those whose which are counted lavorable by those whose views are at all inclined to a safe measure of optimism. The prime cause of this more cheerful tone is undoubtedly the near ap-proach of what appears likely to turn out an excellent harvest throughout Europe. All the latest accounts are good and point to results which, if secured, will in all probability render Europe largely independent of the United States in the matter of wheat. From Southern Russia it is reported that the harvest is being gathered in and is the most luxuriant of many recent years. The same favorable reports come from the Danubian Principalities and Hungary. In Italy the harvest will be rather late, but good, which remark also applies to France and Southern Germany. In Northern Germany the crops are rather light. Holland, Denmark and Belgium will have quite an Denmark and Belgium will have quite an average harvest, but a later one than customary. I have just returned from a run through part of France, Belgium, Holland, Rhenish Prussia, Westphalia, Hesse Darmstadt, Wurtemberg, Baden, &c., and can testify to the general accuracy of the foregoing summarized crop reports. In this country our wheat will probably be reaped a fortnight later than ordinary, but, as a whole, the crops are likely to be a good average—that is to say, far better than we average—that is to say, far better than we have had for four or five years past. The weather has been capital for ripening the corn—a little too hot, if anything, perhaps, but still seasonable. On Monday last we had it 139 degrees in the sun and 88 degrees in the shade, while on Tuesday, July 5, the thermometer in the sun stood as high as 150 degrees, and in the shade from 92 to 95 degrees in different localities. A tremendown thunderstorm—predicted by your savants— followed and did some damage in Lancashire, but, for the most part, the downfall of rain was beneficial rather than the contrary. These good harvest anticipations are, consequently, having much weight in business operations. Should the weight in business operations. Should the fine weather continue about another month we should certainly witness a series of improvements of some moment—possibly exceeding our most sanguine anticipations. Everybody is well aware what the beneficial results of a fine harvest would be, and each man is on the alert. Some few and each man is on the alert. Some few are already taking time by the forelook, and each of the succeeding few weeks, if fine weather prevails, will bring an increase in the numbers of those who take that course, so that by the actual accomplishment of the reaping the effect of the whole thing would have been discounted and forestalled. I have already said that the initiation of this feeling has begun to produce more activity in the finished iron trades. To this may be added the statement that hardwares are participating in a measure in the improvement, but that the position of ordinary crude iron is in no sense stronger than at the date of my last week's letter. Statistically considered, in fact, the position of almost all sorts of pig iron is worse and grows weaker every week. Both in Scotland and in Cleveland the periodical official returns show a sustained overpreduction, and a steady growth of the reserve stocks. In Lincolnshire, Derbyshire, Staf-fordshire and elsewhere a similar state of things no doubt obtains, but it is not so clearly apparent, owing to the absence of regular official returns. The Scotch ironmasters continue to run their 120 furnaces

verbatim copy of the resolution arrived at on that day by the Cleveland ironmasters in meeting assembled. Since that time the question has been fully discussed, and the Scotch ironmasters have replied, stating that they would prefer a written statement from their Cleveland brethren prior to receiving a deputation on the subject of the proposed restriction of production. The matter rests thus at the moment. Opinion is somewhat divided as to the practicability of the Cleveland proposals. No doubt is entertained of the wisdom of the policy of reducing the output, but it is feared that there are so many obstacles in the way of its embediment that it will fall through. The kronmonger of July 9 warmly supports the idea propounded by the Cleveland iron men, and declares, what is obvious to every sane and disinterested observer, that nothing short of a considerable and continued de-crease of production can possibly place the iron trade of the world upon a secure and expansive basis. That so large and experi-enced a body of men as the smelters of Cleveland should take the same view is, indeed, ample proof of its soundness, the only wonder being that it has not been publicly discussed and enforced earlier in the year. An ironmaster writes to a Manchester newspaper "One would say that such a reasonable stock as will keep supply and demand at a substantial level is all that can be hopefully maintained. A stock of which the daily supply is in excess of the demand and is capable of constant increase, must fall in value, and the difficulty is to know whether the make of pig iron is at present in excess of the consumption. Measured by the price and by the stocks it clearly is so, and there are no circumstances which indicate with any certainty that for the remainder of this any certainty that for the remainder of this year there will be an increase of demand. Makers of pig iron were very sanguine in November last, when the price was \$2/6, that it would go higher, and that more furnaces might go into blast with safety. That prospect has not been realized. Pigs are about 6/ lower than they were then, and not be a realized. about of lower than they were then, and no definite and specific grounds can now be assigned why any additional demand should be anticipated. Prices have fallen and stocks have risen, and the year is waning. Where is the demand to come from ? Is not the plan of bolstering up prices by putting iron into store in increased quantities and new places likely to keep the market permanently down? Formerly, and not long ago, Middlesborough had to sell her iron as she made it. Makers could then gauge the market by the state of their own stocks. Now, Where is the demand to come from ? Is not this pressure is cushioned off, and stocks accumulate almost imperceptibly, and the production goes on without those indica-tions which in past times told the maker that he must hold his hand. These facts must not be overlooked when we are fore-casting the future state of the market, Money is cheap, and speculators unconnected with the iron trade are aware that the price of iron is low, and they buy warrants; in this way the maker is able to keep his furnaces going. Whether the process is a healthy one, whether it is founded upon a competent knowledge of the requirements of competent knowledge of the requirements of the world, or whether it is only a temporary expedient which will produce eventual disaster, time only can tell. The price of manufactured iron is very low, and the margin between cost of production and market price, even with the present cheap pigs, is a vanishing quantity; the dividends of the best placed iron-making companies are miserably inadequate; everything points to the conclusion that until some new markets are opened out, or until there is some extension of the old ones, production has gone ahead of consumption; that limited companies have introduced into the trade of iron making more capital than can be profitably making more capital than can be profitably employed; that these companies die hard, but that until this event takes place, or until the new demand springs up in some new quarter, prices must remain where they are unless, indeed, they do not fall to a lower level; and then the speculators, taking fright, will perhaps throw their iron upon the market, and so at length compet the makers to bring their production within the limits of the trade demand." These are fair opinions, and they show that

practical men are largely in accord as to the value of a smaller make. It is understood that the Scotch smelters are not strongly inclined to accede to the wishes of those who are endeavoring to influence their course of action. They profess to be in favor of allowing matters to go on—headlong—until the weak men are all forced out of the busi-ness, besides which they urge that a reduced output in Scotland and Cleveland would be of no utility unless the Derbyshire, Lincolnshire, Northamptonshire, &c., furnaces were also stopped. In so stating their case it appears to me that they totally overlook the moral effects of their course of action. the moral effects of their course of action. In pig iron Glasgow controls Europe—perhaps the world—whereas prices in the other localities named, save Cleveland, have no weight whatever outside this country. Possibly by the date of my next communication more definite intelligence will be available. As matters now stand I confess to having but slight hopes of the Scotchmen agreeing to any organized. the Scotchmen agreeing to any organized limitation of their production.

THE QUARTERLY MEETINGS.

which will take place during the present which will take place during the present week, are anticipated with a certain amount of interest, although it is already an ac-cepted fact that leading iron prices will not undergo any efficial modifications. Marked Staffordshire bars will remain, therefore, at £7 for those of the list houses, with 12/6 extra for Lord Dudley's Round Oak iron; masters continue to run their 120 furnaces with unvarying regularity, and 1500 to 2500 tons of pig are added every week to the enormous pile in Connal's stores. In Clevel land 118 fnrnaces are making more pig than ever before, and the stocks there are also growing large'every succeeding week. In both districts there is a large home consumption and the shipments are about an average, in spite of which the surplusage exists and grows. The Scotchmen do not appear at all affrighted at this, but the Cleveland smelters have at length arrived at the conclusion that it is about time to revise the programme, with a view to effecting something like a fair and reasonable equalization of the make and sale. In a hurriedly written postscript to my last letter I gave you a Liverpool; charcoal ditto, 18/@ 19/per whole half year, although there was an box in these ports. As the markets may expansion last month. The principal items undergo important changes within the next few weeks, it will be wise to watch your month, is thus summarised: specially cabled advices closely.

SCOTCH PIG IRON

has become a few pence better in price within the past two or three days, owing to the influence of the Board of Trade returns, the possibility of a restricted production and better trade prospects generally. At the end of last week warrants left off at 47/@ 47/I, or about 4d. higher on the week. The home demand is good, especially for ship-47/I, or about 4d. higher on the week. The home demand is good, especially for ship-building and foundry purposes, but there is so large a quantity of Cleveland pig used for mixtures that the Scotch smelters do not benefit from the activity in their midst to anything like the extent formerly the case—before the use of Cleveland iron became general. Shipments have gradually improved during the past few weeks, last week being 13,095 tons, or 568 tons over the corresponding week of 1880. To date this year the shipments have been 276,284 tons, year the shipments have been 276,284 tons, a decrease of 107,997 tons upon 1830. There are in Connal's stores 569,286 tons, an increase for the week of 2131 tons, and as compared with 448,885 tons this date last year. Ballast pig is still unaltered at 43/per ton. The furnaces blowing number 120, against 117 a year ago. Importations from Middlesboro' into Scotland last week were Middlesboro' into Scotland last week were 6061 tons, making the total increase this year 35.675 tons. Writing from Glasgow July 8, James Watson & Co. said: "The market was comparatively steady in the fore part of this week, with only a limited business doing; yesterday and to-day, however, the price has advanced somewhat, closing under the heat. Makers' iron is closing under the best. Makers' iron is steady in price. On Monday a small business was done in warrants between 46/9 and was done in warrants between 40/9 and 46/10½ per ton. On Tuesday it relapsed to 46/9, and on Wednesday a moderate business was done between 46/11 and 46/9½ per ton. Yesterday the market was stronger, with a good business from 46/10 to 47/, cash, and to-day as high as 47/3 was paid, closing with sellers at 47/ per ton. The shipments last week were 13,095 tons, as compared with 12,527 tons for the corresponding week of last year." We quote:

			No. 1.	No. 3.
G. M. B., at Gla	sgow		 - 47/3	45/3
Gartsherrie, at	Glasgo	W	 54/6	48/6
Coltness,	0.0		 56.6	49/
Summerlee,	4.6		. 54/6	47/
Langloan,	+6		56/	49/
Carpbroe,	6.6		51/	47/
Calder.	44		 54 6	48.6
Giengarnock, a	Ardro	SHAD	 58/6	47/6
Eglinton,	6.6		 47/6	44/6
Dalmellington.	64		. 47.6	45/
Shotts, at Leith			 55/6	49/
Kinneil, at Bo'm	ess		 47/6	45/6
Carron, at Gran				47/6
O 1.1. 1.		3 .	-1-4	

Some kinds of rolled iron—plates and angles, to wit—have advanced 2/6 per ton in Scotland. Additional large orders for iron and steel ships have been received at the Clyde yards, which are unprecedentedly

CLEVELAND PIG IRON

was depressed at the beginning of last week, owing to the unfavorable nature of the monthly ironmasters' returns, given below, but subsequently experienced a favorable reaction, owing to the causes already mentioned in this letter. The following is a summary of the ironmasters' returns for the month of June: Furnaces blowing 30th June, 1881, 113: 31st May, 1881, 119; 30th June, 1880, 110. There has been a decrease in the make of Cleveland iron for the month of June of 6488 tons; in hematite and other kinds of 5107 tons. In makers' stocks there kinds of 5107 tons. In makers' stocks there has been a decrease of 8968 tons; in makers' stores an increase of 8954 tons, and in public stores an increase of 5486 tons; the total stock on the 30th of June being 431,-326 tons, an increase of 5472 over that of May 31. Stocks of hematite irons are not in-cluded in the returns. This shows a total acknowledged reserve in Cleveland and Scotland alone of very nearly 1,000,000 tons of pig. Current prices of G. M. B. Cleveland pig., net cash, f. o. b. makers' wharves in the Tees are:

No.	1	Foundry	41/3]	Mottled 3:
	8	**	30/3	White
	3	*****	37/3	Refined Metal 5
	1	Forge	36/3	Kentledge 38
			10131	

are as under :

	No. c.	No. 2.	No.
Cleator	62/	68/	60
Lonsdale		56/	55.
Workington	57/	56/	55
West Cumberland	. 57/	56/	55
Lowther		56/	55
Moss Bay	57/	56/	55
Distington		56/	55
Harrington	57/	56/	55
3.lway	57/	56/	55
Magemort			- 6.6

There are 57 furnaces at work in this district out of 81 built. As three of the principal smelters consume almost all the pig they make, stocks are held to be light and unlikely to grow seriously. Last week's shipments were 10,424 tons pig and 6607 tons of rails. Local hematite ore is quoted 11/6 @ 13/6 at the mmes, or 1/@ 1/6 more f. o. b. Barrow, Ulverston, &c., and Spanish hematite ores 16/@ 17/, ex ship.

THE BOARD OF TRADE RETURNS

for the month of June, just issued, are of a moderately favorable nature, showing as they do a considerable falling off in the imports, and a slight increase in the exports.

The aggregate value of our imports during The aggregate value of our imports during the month was £30,865,882, as compared with £37,437,693 in June, 1880, and £27,768,780 in the same month of 1879. The total declared worth of our exports last month was £18,804,997, against £18,462,884, and £14,583,540 in the same months of 1880 and 1880 are expectively. Of iron and steel we 1879, respectively. Of iron and steel, we sent away last month 362,263 tons, valued at £2,426,549, against 361,865 tons and £2,654,567 in June, 1880. For the six months ended June 30, the tonnage was 1,728,207, and value £12,606,271, against 2,004,995 tons and £15,485,444 in the same period of 1880, thus showing a considerable falling for the

Articles.	Quan	tities.	Val	ues.
	1880.	1881.	1880.	1881.
Firearms, No	19.632 25,753 32,550	22,036 31,439 19,981	£22,576 81,707 116,643	£24.550 102,40 75,323
METALS. Sheathing, cwts Coal, &c., tons	24.447 1.755,966	21,676 1,807,246	74,009 787,493	66,796 795,710
Hdw. and cutiery Pig, tons Bar angle—Bolt and	152,270	140,337	304,710 484,402	367,419
rod	19,969 25,417 66,582	25,903 13,754 69,527	159,388 167,953 501,714	173,331 78,104 478,305
tons	100,332	92,548	750,205	627,336
or not, tons Hoops, sheets and	4,971	4-954	76,667	73,302
boller pits, tons	21,801	22,457	262,526	265,175
Tin plates, tons Cast or wrt., tons Old for re-manufac-	25,391	17,126 26,591	325,042	288,727 320,644
ture, tons	12,434	13.377	57,440	\$1,094
Steel, unwright, tons Mf. steel & iron, tons Lead — Pig, rolled	7,308	17.553	79,260	81,047
sheet, piping and tubing, tons	3.993	4,645	64,328	70,437
Steam engines Other descriptions of			338.725	303,316
machinery & mili- work	******		578,078	545,278
gilt wares		*******	15,377	14,333
con. therewith	5,909	9,463	43,306	428,892
Zinc or spelter, cwt	10,019	11,659	10,863	9,024

Articles.	Month of June 1881.	Month of June 1880.	
Alkali, cwts	260,086	215.830	262,810
Hardware and cutlery, £.	40,107	41,726	33,501
Iron-Pig, tons	32,015	51,855	38,444
Bar, angle, rod, &c.,			
tons	1,091	3,207	r,org
Railroad, all, tons Hoops, sheets, plates,	31,963	44,215	39,907
&c., tons	2,428	4-314	2.444
Tin plates, tons	11,833	11,671	12,940
Cast or wrought, tons	307	694	728
Old wrought, tons	9,854	10,280	10,183
Steel, unwrought, tons	15,246	4.944	9,563
Lead, all, tons	4,645	3.993	
Steam engines, £	6,501	1,688	688
Other machinery, &c, £	35,187	33,526	32,131
Tin, unwrought, cwts Special Return—Iron rails,	650	813	1,011
tons	10,616	17.572	17,206
Steel rails, tons	21,082	16,342	22,638

AT SHEFFIELD

there is a distinctly better feeling, for reasons specified in my last week's letter. The heavier industries continue busy, even if not wholly prosperous, and are likely to remain so for some weeks—perhaps months—ahead. I gather also that all the leading houses in the lighter branches are fully occupied. This is lighter branches are fully occupied. This is the case as regards table and pocket cutlery, edge tools, files, wire, sheep shears, razors, electro-plate and engineers' tools. Profits are lean, as a rule, but there is more work in hand, and good home-trade prospects are encouraging the accumulation of some stock. It is a far cry to the skating season, but I may mentiou that the skate makers are but I may mention that the skate makers are all "up to the hilt" in business, and cannot execute all their orders this season. The official returns of the American Consul at Sheffield show that the aggregate value of the exports thence to the United States for June was £360,587, against £291,559 in June, 1880.

BIRMINGHAM AND WOLVERHAMPTON

enjoy an amount of business which is styled "quiet but steadily progressive," toward which the home trade is contributing more than hitherto. Several branches of export are also stronger. A somewhat brisk demand from the United States exists for guns, anvils, chains, curry combs, fancy goods, and jewelery. The galvanized iron manufacturers are all crowded with orders and are advancing prices. Shipping tackle, pulleys. vancing prices. Shipping tackle, pulleys, blocks, brass foundry, lamps, stoves, and general ironmongery are all moving off more freely. Bicycles are being sent off very largely, especially to the United States. The largely, especially to the United States. The anchor makers are refusing orders—mostly for very large articles of this class. Mr. We'son King, U. S. Consul at Birmingham, reports the following exports from his Consulate during the quarter ending June 30, 1881: From Birmingham: Anvils and vices, \$33,963.90; chains, hoes, and scythes, \$45,686.00, gave, and materials. \$30,643.26. From Kidderminster: Hardware, \$4,112,28. From Wolverhampton: Hardware, \$57,119.50; tiles, \$2215.47. The total exports from the district was \$959,781.58, in comparison with \$1,346,255.16 during the corresponding quarter of 1880

TIN PLATES are again without change, and prices are only moderately firm at the rates quoted last week. The quarterly meeting of the trade will be held this week, when the position of the whole industry will be fully discussed. The question of the overproduction now current, and also that of regular statistics as to the make, stocks, &c., will come before the meeting, and efforts will be made to effect some kind of organization for the purpose of securing such statistics. There is little doubt that, the whole of the forges and mills being again at work, the total make is far in excess of the actual require-ments of home and foreign consumers. The workmen have made a desperate attempt to reduce the output, but, owing to the want of support and sympathy on the part of at least half the manufacturers, their efforts have failed. Nothing in this way will be successful until the whole trade is firmly united and placed under the liability to penalties for breaking agreements.

FOREIGN.

FRANCE.

Bars, 155 @ 157.50 francs the 100 kilos.; Ingots and Slabs. 162.50; Best Selected, 166.25; and pure Corocoro Ore, 156.25. Tin.—Banca and English, 247.50; all other sorts. 23; Lead, 37 @ 37 50, and Spelter, 41.50 @ 12. Iron.—There is great firmness at 10 francs for Merchant Iron, and 19,50 for Flooring ditto; in some instances 50¢ more is obtained. Dealers take good care not to help the upward movement on the spot, for they have got light holdings, and mean to be purchasers, not sellers, in the immediate future. We do not, therefore, expect any further advance immediately. In the Haute-Marne producers whose works use water power, complain that they cannot deliver as fast as they would like to do considering the pressing nature of some of the orders. They sell currently mixed iron at 21, and Coke ditto at 10. There is but a slack demand there for Iron Wire; this is owing to the season. They quote No. 20, 23 francs. Wire Nails still bring 27 @ 27.50 francs at the works. In the Meurthe and Moselle there is still considerable activity, Foundry Pig No. 3 selling at 7.00. and Affinage ditto at 6.0 francs. Coal.—A moderate amount of activity has reigned during the week at prices which have not varied much from the average price of last month.

BELGIUE.

BRUSSELS, July 10, 1881.—Iron.—The better facing in the Iron trade, to which allusion was made in our last report, has been strengthened during the week. Our works have now got domestic orders on hand sufficient to keep them busy for several weeks, while fresh ones are dropping in steadily. All that is wanted at present is that some good commands for export should arrive, and there would be a chance, not only for an advance in prices, but for such improvement being sustained for some time. Works in good position and comparatively independent have not hestitated to screw up their prices a little, and in this they seem to be justified in view of the better aspect which Iron matters are beginning to wear in Germany, where prices but a few weeks age had been depressed to their lowest ebb, but have now commenced to recover from this prostration. Merchant Iron, according to quality, now commands between 12 and 13 france per too kilos, in this country. Coal—Also begins to rally from the late weakness which led to the depression at the latter are now fully know—It seems to have been a lack of agreement between a couple of large producers, whose subsequent competion as sellers at the late adjudication produced the unexpectedly low bids. The prospect is that prices may, from now forward, gradually harden as we approach the active season; they are certainly low enough now.

GERMANY.

Germany.

(Borsenhalle.)

Hameira, July 12, 1281.—Iron.—We receive from Dortmund, dated yesterday, the ensuing report for the week: "The general tendency is a firmer one; this is due less to a better demand at home than to more favorable advices from abroad. In France domestic production of railroad material is unable to cope with the extraordinary demand for it—at least it cannot deliver as fast as the material is wanted. They are thus compelled to send orders even to Germany but the bulk of rolling stock they order in Belgium and Austria, and some orders we receive indirectly through Belgian firms. Grey Pig is still neglected here, although a few Duisburg blast furnaces begin to ask more. The demand increases for Bessemer Pig, Foundry ditto and Spiegeleisen, but only the first named is firmer. Rod fron is more inquired after, too. As for Structual Iron, in corner and pillers the demand has been on the increase for some weeks past, and the rolling mills now insist upon more time for delivery. Coarse Sheets move off well at steady prices. The Steel works have received large orders for Steel Rails and Ingots with more in prospect. For an Algerian railroad the 'Phonix' received an order for soos tons Steel Rails, from the 'Campagnie France-Algerienne,' and the same company orders four locomotives. Bridge builders and steam-boiler shops are also satisfactorily occupied, but this is only partially the case as regards machine shops and foundries. Coal.—Although the demand is better than last year, Coal remains lower than it was then." From the Moselle and Sarra region we hear that there is no improvement in Iron perceptible as yet, but it is soon expected. Coal is doing well in that locality. The Coal production there was 110,602,420 cwt. last year, against 102,774,300-in 1879. In the Rhenish provinces and Westphalia, generally, there are symptoms of a decided improvement in the Iron branch. Coal is selling steadily, but at unromunerative prices. Medical bave been quiet. Lead dull; we quote English Pig, 16 @ 16.50 m (Borsenhalle.)

HOLLAND.

(Kock & Vlierboom.) (Koca & Fiserboom.)

ROTTEBDAM. July 12, 1881.—Tin is dull, with a sluggish trade; we quote Banca. 54, and Billiton, 53.75 guilders per 50 kilos. On the 27th inst. the Netherland Trading Society will sell at Amsterdam 23,600 slabs Banca Tin.

PRICE OF BANCA TIN SINCE 1874.

AUSTRIA. (Austrian Trade Journal.)

(Austrian Trade Journal.)

VIENNA, July 10, 1881.—Iron.—Interest is still concentrated upon the impending consolidation of Alpine Iron works, and although this plan has not been realized to the full extent contemplated, some large works not joining that had been counted upon, the general benefits to arise from it to the parties interested hardly remain as subject of douot. Some parties belonging to the blast furnace combination seem to have grown weary of it, particularly the city of Leoben producers, and the probability is that the whole combination will soon dissolve, which will be one of the indirect consequences of the consolidation above alluded to. Iron trade in Austria is tolerably active, but prices leave much to be wished for, for they are by no means remunerative. There is a large consumption of rolling mill products. Fig. Iron is partially firmer, Sheet Iron moves off tolerably well, Tin Plates are neglected. Hardware is moderately active, both for home use and export, but prices thereof are also too low to leave any profit to the manufacturer. The report that Hungarian rolling mills have raised the price of Merchant Iron, or kreuzers is now positively contradicted. There is a better feeling in Iron at Vienna without, as yet, leading to any advance. We quote Fig. 44 (§ 32 at the works; Merchant Iron, 100 (§ 113 at Vienna; Sheets, 145 (§ 180, and Fillars, 115 (§ 118 finrian per 100. Metals are in steady demand at well supported fixures. We quote: Copper, 70 (§ 20 florins per 100 kilos; Tin, 116, 50 (§ 118; Lead, 20,50 (§ 21; Spelter, 19 (§ 20,50; Antimony, 67, and Sheet Zito. No. 9, 26, 25; Nickel commands 4.50 florins, 97 %, per kilo.

CHILL.

(Weber & Co.)

VALPARAISO, May 24, 1881.—Copper.—Since our last report the market has been weak, and, as cable news from Europe was unfavorable, prices have further declined; 160 tons Chanaral, with 60/ steam freight, at first still brought \$20.30 on board, but the next day 100 tons Uneneat sold for \$20.55 on board. Spot Copper, on shore, sold at \$10.50 out tons Lota, with 50/ freight, for \$20.55 on board. Spot Copper, on shore, sold at \$10.50 out tons Lota, with 50/ freight, for \$20.55 on board. Spot Copper, on shore, sold at \$10.50 out to be held there next December, at this figure there are more buyers. Sales during the fortught 10.555 quintals. Nitrate.—The

market has been depressed by the quiet in Europe, and the rising freight here coupled with the rise in exchange. Sales 326,000 quintals at \$3.17% (3) \$3.40, 95 and 96 %. The charters since 10th inst. have been 8800 tons for Europe, and 5300 for the United States.

EXPORT FROM JANUARY : TO APRIL 30.

t	r88r. Quintals	1880. Quintals.	1879. Quintals
	To Northern Europe,601,633	713,300	1,663,060
	To the Mediterrranean 8,901 To the United States—		
	Atlantic 260,059 California. 44,000		91,190
	Cantornus 44,003	34.997	40,007
	Total1,914.593	975,782	1,794,917
	Coal.—Near-by cargoes steam		
	and a cargo of West Hartley. Taltal brought 41/3, while Mar	ch sails is	offering
1	at 35/ @ 37/. Two Cardiff of	eargoes so	d for and
1	@ 37/6. Swansea smelting Co	oal may be	quoted
1	at 28/9 @ 29/9. Exchange 27 sight, London.	1/8 @ 27%.	90 days'

EAST INDIES.

EAST INDIES.

(Schmidt, Kustermann & Co.)

PENANG, June 4, 1881.—Th.—Not much of a business has been transacted in this metal during the present week, while the previous one was at first more active at \$2.6 co. \$2.6.6, per picui; then the metal declined to \$3.6.6, but finally recovered to \$2.6, the closing figure. Sales have been 2500 picuis to go to Europe and America, and 3500 to go East. The stock left in Bazar is 2400 picuis. Exchange has been tending downward, closing at 3/9% for 4 months bank bills on London.

(Gilfillan. Wood & Ch.)

Gilfillan, Wood & Co.)

SINGAPORE, June 8, 1831.—Tin—Opened weak at \$26.90 per picul, but subsequently \$26.80 was accepted. From that point improvement began and \$27.625 was touched, but at the close the feeling is rather weaker, and sellers offer the metal at \$27.40. Sales during the fortnight aggregate 430 tons. Shipments from the Straits to the United States during the first five months have been 20.014 piculs, against 66,70 last year, 38.08 in 1879, 20.127 in 1878, 25.730 in 1877, and 17.060 in 1876. Freights.—Several ships having come in chartered at home, there has been some pressure on the London and Liverpool berths, and rates are now 45/ for dead weight. For New York the Mercury has taken the berth at current rates. For Boston there have been no charters. Exchange is weak at 3/9¾ for 6 months' sight, private bills on London. (Gilfillan, Wood & Co.)

LABOR AND WAGES.

The Philadelphia and Reading Coal and Iron Company are preparing to work all its collieries to their utmost capacity. Many of the old collieries are to be reopened.

Large as immigration is, the demand for labor at Castle Garden exceeds the supply. The superintendent of the Labor Bureau says that within 24 hours he had orders for 1000 men at \$9 a week, which he was unable to fill. Orders had come from railroads in all parts of the country as well as New York State, from mill owners, iron manufacturers and farmers.

From figures compiled relative to the rate of wages in France, it appears that there has

phia, to arrange a plan of settlement of the trouble in Westmoreland County growing out of the miners' strike in that district.

About three weeks ago the miners, numbering a settlement of the miners of the miners, numbering a settlement of the miners of the miners. bering 700, quit work in consequence of a refusal of the employers to advance their wages. It was agreed to advise the miners wages. It was agreed to advise the miners to appoint a liberal and just committee to wait upon the employers and make every endeavor to bring about a compromise. No funds will be forwarded by the national committee to sustain the work unless these

committee to sustain the work unless these instructions are fully carried out.

There is a continuous departure of people from the anthracite region for the West. The men complain that the uncertainty of work in the mines has become so harassa new country can be worse than it.

At Oliver Bros. & Phillips' Southside mill,
Pittsburgh, 20 punchers have been on strike

for an increase of 10 per cent. They got from \$1.30 to \$1.60 per day. Carnegie & Co., Larimer Station, Pa., owing to the scarcity of laborers, dispatched an agent to New York last week to procure a number of men. The agent succeeded in obtaining 27 Germans who had just landed, and returned with them on Sunday evening

last.
The Keystone Bridge Company, Pittsburgh, has opened a drawing school, to which free access is given to all their em-A competent instructor, Mr. Alextwo evenings in the week rooms are thrown open for the instruction in mechanical drawing for all that choose to come. The company furnishes gratis all drawing materials, books, &c., needed by the students. There is thus placed within the reach of every man or boy employed at these works a means of perfecting himself in a branch of unmeasured usefulness to him as a skilled mechanic. Mr. Gotlieb, president of this company, has done a noble thing, and many boys will date their success in future life from their evenings spent in this school.

Rumors that Mr. James R. Keene, the well known speculator, has determined to take a hand in the Western barge business are taking a more definite shape. The company, of which he is president, are expecting to perfect their organization this week. They are said to have already bought 63 steamers, 120 barges, and numerous warehouses along the Mississippi River, preparatory to shipping grain and provisions to Europe at a cost for transportation far below the present all-rail rates to Atlantic ports.

There is now being built at Lebanon, Pa., by the Lebanon Manufacturing Company, 200 refrigerator cars for the American Transit Company. The company is a line owned and controlled by the Gould system of railroads, and has been organized for the purpose of transporting perishable property of all kinds over the Gould and connecting

All goods intended for the exposition are exempt by law from import duties. Reduced rates have been secured from different points rates have been secured from different points in the United States to Vera Cruz, and shippers will be entirely relieved from all the care and annoyance of shipping, clearing and entering their goods through the custom houses. The Governor of the State of Vera Cruz has instructed Mr. David V. Whiting, of Chicago, to extend a cordial invitation to the citizens of the United States. vitation to the citizens of the United States to participate in the above exposition, either as exhibitors or visitors.

Art Castings in Iron.

The editor of "The World's Work," in Scribner's Magazine for August, has the fol-lowing mention of the recent productions of the Magee Art Castings Company, of Bos

ton, Mass.: While there is no change of importance While there is no change of importance to be observed within the past 50 years in the methods used in simple iron founding, it may be observed that American practice in this ancient art has recently risen to a remarkable degree of perfection. The very fine castings produced by some of our stove foundries suggested the application of cast iron to the reproduction of various art works in bronze, silver and brass. Experiments in bronze, silver and brass. Experiments were recently made in an ordinary stove foundry with such tools, materials and labor as could be found, and using some antique brasswork for patterns. Very labor as could be found, and using some antique brasswork for patterns. Very great pains were taken to secure the best materials for molding, fuel and iron, and the work was given to skillful stove founders who had never been employed on any art castings, the aim in this respect being to bring the work to a commercial say well as art basis. The result was set. as well as art basis. The result was sufficient to warrant an exhaustive series of experiments, to ascertain what degree of fineness could be obtained with such men and materials. Antique swords and ornamented helmets, brass sconces, Persian bronze and silver plaques, Japanese bronze trays with foliage in low relief, and many other fine works, were tried as patterns and with marked success. terns and with marked success. An examination of the foundry, while in operation, and a large number of castings in imitation of these and other works, warrants the be-lief that a new field of art industry is now fairly established in this country. Among the pieces seen in cast iron were the "Siege of Troy" shield by Cellini, a copy of a brass plaque with head of Shakspeare, showing very fine work in imitation of fabrics, a From figures compiled relative to the rate of wages in France, it appears that there has been an advance of hire of upward of 50 per cent. in the past 30 years. Taking 38 crafts, there has been an increase of from 44 per cent. to 74 per cent. each, and a general average of 52 per cent. of increase. An equally good authority shows that the prices of beef, butter, sugar, coffee, cotton and wool in this country have somewhat declined in the past 50 years.

The national executive committee of the Knights of Labor met recently in Philadelphia, to arrange a plan of settlement of the manipulation and in choice of metal. The iron used is chiefly American, with a slight mixture of Scotch pig. The castings have already attracted great attention among architects and others interested in metal work, and will, no doubt, do much to bring fine copies of decorative work of this class within the reach of all.

The St. Louis Globe Democrat of the 22d, says: At 12.45 this morning the Harrison Wire Works was visited for the second time by a disastrous conflagration. The loss in this instance will fall short of \$15,000. That the whole of this valuable property was not swept away, and a loss approximating a quarter of a million dollars inflicted, is due entirely to the prompt and intelligent action of the Fire Department. The flames were confined to a structure in the North end of the works known as the annealing department. There is much delicate and valuable machinery in this department, which was more or less damaged. The roof of the building or less damaged. The roof of the building was entirely burned off. The stock of fine wire in the upper floor was damaged but little. It was almost impossible to learn how the fire started, but the generally accepted theory is that through some defect in the stack of one of the drying furnaces, the roof caught. Mr. Thos. W. Fitch, superintendent of the mill company was sent for and arrived at about 2 pany, was sent for, and arrived at about 2 o'clock. He said it would be impossible to estimate the loss until morning estimate the loss until morning, as the burned premises were not in a condition to be inspected. The consequential damages resulting from the temporary stoppage of this important portion of the works would be heavy. About 75 or 100 men and boys will be thrown out of employment. The company has been particularly unfortunate this year. The fire in the winter was very disastrous. They had hardly rebuilt and set to work when the men and boys in the rolling and drawing departments locked themselves out. The rolls remained idle under orders of the Amalgamated Iron and Steel Workers' Union of the United States. Work has, however, progressed in the fine wire and furnishing departments. This, too, will be forced to shut down for a while. The work of rebuilding will of course commence at once.

Locomotive building continues with undiminished activity. Twenty-five finished engines have been shipped from Paterson within a month. The Rogers Works employ 1580 men; the Danforth Works, 900; and the Grant Works about 800.

At the Westerley, R. I., quarries a single stone has been obtained which is 150 feet long, 10 feet wide by 8 feet thick, weighing over 1000 tons; and it was loosened by one oblong blast hole, in a simple and perfect manner. This beats the ancients.

The public will lament the death of Capt. Chas. P. Smith, the heroic pilot of the Seawanhaka, who remained in the wheelhouse until he was dangerously burned. He was attacked by erysipelas in the face, which still bore marks of the flames.

DRILL BRACE.



This is a 10-inch sweep Brace, with a gear-wheel speeded about three to one, to be This is a 10-inch sweep Brace, with a gear-wheel speeded about three to one, to be used for drilling and also for boring in places where there is not room to revolve the Brace Sweep. By an ingenious device the large gear wheel can be put on at three different angles with the Brace Sweep, adapting it for use in narrow or cramped places. When not needed the gear wheel can be removed in one second, leaving a plain Brace. This Brace is made of steel, and is heavily nickel-plated, with rosewood handle and lignumvite head. The jaws are of forged steel and will center and hold firmly Round Twist Drills from ½ to 7-16 of an inch in diameter. Also, Square Shank Bits and Drills of all sizes. Also, Square and Flat Screw Driver Bits. In fact, it will hold perfectly tool shanks of any size or shape. There is no other chuck in existence which will do this. It is our purpose to furnish everything in the line of Bit Braces and Breast and Hand Drills of a style and quality superior to anything else in the market.

Price of Drill Braces per dozen, \$36.

Same discount as Breast Drills.

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Anti-Window Rattlers, Brass and Nickel-Plated. WESTERN FILE CO.'S Cast-Steel Files.
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STUART PETERSON & CO.'S Tinned and Enameled Ware, &c.

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GEO. R. STETSON, Supt.

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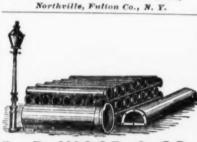
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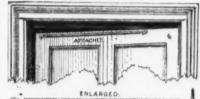
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The Suez Canal.

The shareholders of the Suez Canal Company held their annual meeting on June 9th, at Paris, when the annual report was submitted and approved. A dividend of 21.89 francs was declared, apart from the fixed interest of 25 francs. The report states that the gross receipts have amounted to 41,320,000 francs, and the gross expenditure to 28,841,000 francs, leaving a net profit of 12,979,000 francs. The most interesting part of M. de Lesseps' report relates to the traffic. During last year 2026 ships, with a tonnage of 4,344,519 tons, passed through the canal. From 1870 till then the figures had been as follows:

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	ips. Tons.
	186 495,911
	765 761,467
1872 T,C	82 1,439,169
1873 1,1	73 2,085,072
1874 1,2	
1875 I.4	
1876 1.4	
#877 1,6	63 3.418,949
1878	
1879 I,4	77 3,236,942
Mtinte duning this no	nied rose from

The receipts during this period rose from 5,150,000 francs in 1870 to 28,886,000 france 5,159,000 francs in 1870 to 28,886,000 francs in 1875, and 30,840,000 francs in 1879. Last year 221 ships, with a total tonnage of 353,985 tons, passed through the canal for the first time. Compared with the previous year, this is an increase of 66 ships and 118,371 tons. The Ducal Line, Bird Line, Union Line, Rotterdam Lloyd and Rubattino Company have each added one vessel to their fleet; the China and Japan Line, the Russian Line and the Austro-Hungarian Lloyd, each 2 vessels; the Anchor Line, Ocean Steamship Company and the Peninsular and Oriental Company, each 3 sular and Oriental Company, each 3 vessels; the Orient Line and the Ligne Française, connecting Marseilles with the eastern cost of Africa, each 4 vessels; and the British India Steam Navigation Company, 5 vessels. A new postal line connecting England and Spain with the Philippine Islands has been started with 5 ships. A great trade movement has sprung up between Russia and the colonies of the Amoor and Russia and the colonies of the Amoor and island of Saghalien. There are now some 20 vessels carrying on this new traffic independently of the "national fleet," which has also augmented the number of its ships. Two hundred and thirty-eight steamers last year carried coal from England to different parts of the far East; 57 carried rails and railway material to Kurrachee, and 2 vessels from New York laden with petroleum passed through the canal. There were also 35 vessels from Australia. 2 of which were entirely sels from Australia, 2 of which were entirely laden with fresh meat preserved in ice, 27 with Chinese and Japanese products bound for New York, and 26 vessels which passed through in ballast to receive cargoes await ing them at Indian ports. The report anti-cipates from the experience of the present year that it will show a still larger traffic year that it will show a still larger traffic than last year, though last year's return al-ready showed, as above seen, an increase of nearly 40 per cent. on those of 1879. Since January last the British India Company have created a new regular service between Eng-land and Queensland, and all the great regular lines have sent vessels to the traffic.

Of the 514 axles which failed on British railways during the year 1880, 278 were engine axles, viz., 251 crank or driving and 27 leading or trailing; 25 were tender axles, I was a carriage axle, 192 were wagon axles, and 18 were axles of salt vans. Ninety wagons, including the salt vans, belonged to owners other than the railway companies. Of the 251 crank or driving axles, 190 were made of iron and 61 of steel. The average mileage of 182 iron axles was 171,832 miles, mileage of 182 iron axles was 171,832 miles, and of 60 steel axles, 174,039 miles. Of the 436 rails which broke, 336 were doubleheaded, 85 were single-headed, 13 were of the bridge pattern, and 12 were of the Vignoles section; of the double-headed rails, 196 had been turned; 216 rails were made of iron and 230 of steel.

The Steel Company of Scotland has tried the Pernot system and abandoned it. They appear to have come to the conclusion that appear to have come to the conclusion that, owing to the great trouble and expense in keeping the furnaces in repair, the system possessed no special advantage over the ordinary Siemens furnace. They were, however, using these furnaces for soft coal for ship plates, whereas, in other localities, rail steel was being manufactured. This is an important difference, the temperature in the former case requiring to be much higher the metal, therefore, more infusible; quently, the wear and tear and attendant expenses would be proportionately greater.

A circular has been prepared by the Mint Bureau for the purpose of ascertaining the amount of gold and silver used in manufac-tures and the arts in the United States during the last fiscal year. It will be forwarded by mail to manufacturers, with a reques that they fill up a blank form which will be inclosed, calling for the amount of United States coins melted and worked up; fine bars used, and foreign coin, dust and old manufactured articles made into new work. Nearly three thousand answers were received from persons addressed with a simi-lar object in view last year, which showed that there had been an aggregate of \$12, 008,363 in gold and silver used in the man-ner indicated during the fiscal year 1880.

It is gratifying to know that no permanent disturbance of relations between this country and the United States of Colombia is likely to occur, a commission having been appointed by the government at Bogota to settle all diplomatic differences now existing.

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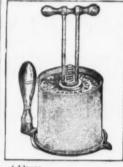
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Harners Sinaps.

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Globe Mfg. Co., Middletown, Conn.

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Holt Biram & Co., East Wilton, Me.
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Lyon Nelson, Albany, N. Y.

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Sevill Mfg. Co., 4to Broome, N. Y.
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Chambers, Bering & Quinlan, Decatur, Ill.
12
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Hoisting Machines.
Box Alfred & Co., 312 Green, Phila.
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Dunn J., Cleveland, O.
Harrington Edwin & Son, Philadelphia, Pa.
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Sellers Wm. & Co., Phila and 79 Liberty st., N. Y.
Stokes Parrish, Philada., Pa.
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Schoenberger & Co., Pittsburgh, Pa.
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Horse Stores, 19
Lot., Pittsburgh, Pa., 19
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Ice Creum Freezers.
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Osgood F. & Co., Bergen Port, N. J. Assord F. & Co., Bergen Port, N. J.

Berling Works,
Philadelphia Smelting Co., Limited, Philadelphia, 6
teeves Paul S., 760 South Broad, Phila.
United States smelting Works, Philadelphia, Pa. 26
Spiegeleisen,
Wright Peter & Sons, Philadelphia.

Holmes, Booth & Haydens, 49 Chambers, N. Y., 2&11 Holmes, Booth & Haydens, 49 Chambers, N. Y., 2&11

Springs,
Lay & Moen, 24 W. 20th, N. Y.

23 Cartier Steel, Johnstown, Pa., 2&22

Rowland Wm. & Harvey, Frankford, Phila, 40

Semple & Burge Mig. Co., St. Louis, Mo., 25

Stamps, *tencil, Michael A. M., Abany, N. Y., 20

Single Drivers, Phila, Novelty Mig. Co., 82 Cherry, Philadelphia, 10

Steam Hammers, &c., Makers of, Dienelt, Eisenhardt & Co., Philadelphia, Pa., 38

Dudgeon Richard, 22 Columbia, N. Y., 14

Cameron A. S., East 23d, N. Y. Clayton Steam Pump Works, 14 and 16 Water st., Brooklyn, N. Y. Crane Bross, Mfg. Co., Chicago, III.

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Perfection Window Cleaner Co., Chicago, Ill......13 Window Springs, Makers of, Hammond W. S., Lewisberry, Pa...

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Blake & Johnson, Waterbury, Caun
Dunbar, Hobart & Whidden, 30 Warren, N. Y.
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Coes L. & Co., Worcester, Mass. 15
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METALS.	4 Per cent. German Silver Tubing.—dis 10.5
IKONDUTY Bars, 1 to 1/60 W h; Sheet, B.	0 "
IKON.—DUTY Bars, 1 to 1560 W m; Sheet, B Hoop and Scroll. 14 to 1560 W h; provided, that n of the above fron shall pay a less rate of duty has per cent. Pig. 27 W ton; Polished Sheet, 30. 20 Wrought Scrap, 28 W ton: Cast Scrap, 26 per Kallroad 700. W 100 ms. Boller and Flate, 1560. W 1	and to the state of the state o
Wrought Scrap, \$8 \(\Pi\) ton: Cast Scrap, \$6 per thaliroad foc. \(\Pi\) ton Ba. Boller and Plate, 156c. \(\Pi\) 1700 —American	On. STEEL. DUTY: Bars, Ingots, Sheets and Cot.
Foundry No. 1.	valued at 7 cents ? B., or under, 24% cents; over, cents, and not above 11, 3 cents ? B; over 11, 3 cents ? B, and to % ad val. Railway Bars, 14 cents ?
Eglinton. Ston 21.00	STEEL.—Duty: Bars, Ingots, Sheets and Colvalued at y cents \$\mathbb{B}_{\text{a}}\$ or under, 24\psi cents; over. \[\begin{array}{l} 4\infty \) \text{cents}, and not above it, 3cents \$\mathbb{B}_{\text{cents}}\$ \text{over it, 3\psi cents} \] \[\begin{array}{l} \text{B}_{\text{a}}\$ \text{cents} \text{over it, 3\psi cents} \] \[\begin{array}{l} \text{B}_{\text{a}}\$ \text{cents} \text{over it, 3\psi cents} \] \[\begin{array}{l} \text{B}_{\text{a}}\$ \text{cents} \text{it} \] \[\begin{array}{l} \text{B}_{\text{a}}\$ \text{cents} \text{over it} \] \[\begin{array}{l} \text{B}_{\text{a}}\$ \text{cents} \text{over it} \] \[\begin{array}{l} \text{B}_{\text{a}} \text{cents} \text{over it} \] \[\begin{array}{l} \text{B}_{\text{a}} \text{cents} \text{over it} \] \[\begin{array}{l} \text{B}_{\text{a}} \text{cents} \text{over it} \\ \text{B}_{\text{a}} \text{cents} \\ \text{B}_{\text{a}} \text{cents} \text{over it} \\ \text{B}_{\text{a}} \text{cents} \\ \text{B}_{\text{a}} \text{cents} \text{over it} \\ \text{B}_{\text{a}} \text{cents} \\ \text{B}_{\text{a}} \t
Eglinton.	description, shall be classed as American Cast Steel.
Iron # ton #48 00 ist 4	10 Extra Cast 20 % 1616
W Jought Scrap ♥ ton	Round Machinery, Cast
% to :in. round and square	German Steel, Best # b 13c German Steel, Best # b 11c 2d quality # b 10c
Refined from \$\fomega \tau \gamma \text{if to } \text{in. round and } square	adquality # b 9c Sheet Cast Steel, 1st quality # b 15/6 2d quality # b 14/6
Rods—16 and 11-10 round and square 18 18 2. Bands—1 to 6xx-10 to No. 12 18 18 18 18 18 18 18 18 18 18 18 18 18	de d
Common R. G.	
10 to 20	Pipe
10 \$0 30	Pipe Inta Sneet, 2Mc w 10.
Galvanized, to to 20.	
20 to 20 # 15 go 40 20 834 27 # 15 go 460 834 28 5 10 10 10 10 10 10 10 10 10 10 10 10 10	TIN.—DUTY: Plates, Sheets, Tagger and Terne, r.ic \$\frac{\pi}{60}\$ of, sot enumerated, 35 per cent. ad. val. Bars, Block
Patent Pinnished.	(c and Pigs free. Banca, subject to duty of 10 per cent, (c Banca
COPPER.—Dury Pig, Bar and Ingot, sc; Old Coper to B; W Manufactured (including all article cwhich Copper is a component of chief value), 45 % a	of TIN PLATES.
American Ingot \$ \$ See Trade Repor	14X20 } Prime Charcoal
SHEATHING, BRAZIERS COFFER. BOLTS, AC. Braxiers' Copper, ordinary sizes, 100z. per sq. ft., and over per lb. Braxiers' Copper, ordinary sizes, under 16 oz. and over 12 oz. \$\psi\$ so. ft. \$\psi\$ b. 32 Braxiers Copper 10 oz and 12 oz., \$\psi\$ sol. ft. \$\psi\$ b. 32 Lighter than 10 oz. \$\psi\$ sol. ft. \$\psi\$ b. 32 Circles less than \$\psi\$ then n diameter \$\psi\$ sol. ft. Circles \$\psi\$ than \$\psi\$ then n diameter \$\psi\$ b. 33 Circles \$\psi\$ than \$\psi\$ then n diameter \$\psi\$ b. 33 Segment and Pattern Sheets \$\psi\$ b. 35 Begunson sol. \$\psi\$ sol. \$\psi\$ sol. \$\psi\$ b. 35 Beathing Copper, over 12 oz. \$\psi\$ qt. ft. \$\psi\$ b. 35 Bolt Copper \$\psi\$ b. 35 No Copper is Sheathing except 143,0 inches and ne to exceed 34 oz. to the so. ft. 11NNING.	IX 10X14 Charceal 8.35 IX 13X13 8.50 IX 13X13 8.50 DC 1194X17 5775 DC 1194X17 7775
Braziers' Copper, ordinary sizes, under 16 os., and over 12 oz., \$ so. ft	D C 12/4X17 5.75 D X 12/4X17 7.75 For each additional X add
Circles less than 84 in. n diameter	CORE TIN PLATE. CORE TIN PLATE. Best. Ordinary.
Begment and Pattern Sheets	1 C 10x14 }
Boit Copper. # 25 25 25 25 25 25 25 25 25 25 25 25 25	TERNE PLATE. C. Prime Char. 2d quas. Coke.
to exceed 34 os. to the so. ft. TINNING. 458	C 13x20 Prime Char. 2d qual. Coke, Sec. S
For tinning both sides, double the above amount	I C 20x300 10,000 I C 14x20 M. F. Brand 7.50
O'NELL'S PATENT PLANDING COPPER.—Net. 14 and it on, and heavier	SPELTER—DUTY: In Pigs, Pars and Plates, \$1.50 F
Botter Sizes. 7 in., 14x52. 8 in., 14x6. 9 in., 14x6. 14 and 15 oz. and heavier. \$\psi\$ 38c By the case. \$\psi\$ 37c	American, cash 5% @ 5% c Bergon Port from Lenign Ore 100 Lehign, on spot 000
(And all sizes not over as in. wide. 30%50. 14 and 16 os. and heavier	Sheet, Cask
O# # 10 430	0,000
Brown & Sharp's Gauge the Standard for Metals. Old English Gauge the Standard for Wire. ERASS MANUFACTURERS' TRICE LIST.—dis 20%. June 10, 1800.	Paper Stock, &c.
Cash prices for Roll and Sheet Brass. For less quantity than 100 Ms. add 20 F Ms. HIGH SPARS.	(Dealers' Selling Price.)
All Nos. not thinner than to No. 28, wider than 2 in., not wider than 1.1 in	White Shirt Cuttings, No. 1. 614 6 694 Mill Assorted Whites 514 6 544
All Nos. to No. 28, inclusive, and widths over 20 to	Unbleached Muslins
70 in., incutaive	New Seconds, light
Sheets 24x48, and all sneets out to particular sizes and lengths under 30 in., in width wider than 2 in.370	Cotton Canvas 444 6 454 Linen Canvas, No. 1 44 6 474 Seconds, City No. 1 14 6 3
ciusive. Ail Brass thinner than No. 8 is Platers' Brass, at 596 Sheets 2448, and all sneets cut to particular sizes and lengths under 30 in., in width wider than 2 in 370 Princers' Rules	Cotton Canvas 446 6 436 436 436 436 436 436 436 436 4
Sheets 2xx48, and all sneets cut to particular sizes and lengths under 50 in, in width wider than 2 in, 370 Printers' Rules. 450 heets wider than 50 in, and under 40 in. 450 do in and over. 400 Circular Sheets, in diam, from 4 in, 16 14, inclusive, 500 Circular Sheets, 50, 44, 450 Over 14 20 5, 50, 44, 450	Cotion Canvas 446 444 444 444 444 444 444 444 444 44
Ctrcular Sheets, in diam. from 4 in. to 14, inclusive, 500 1	Cotton Canvas 44, 64 43, Linen Canvas, No. 44, 66 43, Secunds, City No. 1 46, 68 43, Secunds, City No. 1 46, 68 43, Colors, per 100 lbs 14, 68 14
## 40 in and over	Cotton Canvas 484 6 484
Circular Sheets, in diam, flow 4 in, to 14, inclusive, occording to the control of the control o	Cotton Canvas
Circular Sheets, in diam. from it is to 14, inclusive, so over 18, 20, 30, 30, 30, 30, 30, 30, 30, 30, 30, 3	Cotton Canvas 484 6 484 Linen Canvas No. 1
Circular Sheets, in diam. from 1 in, 50 14, inclusive, 500 Circular Sheets, in diam. from 1 in, 50 14, inclusive, 500 over 14 25, 30, 400 35 35, 30, 400 35 35, 30, 400 35 35, 30, 400 35 35, 30, 400 35 35, 30, 400 35 35, 30, 30, 30, 30, 30, 30, 30, 30, 30, 30	Cotton Canvas 44 6 43 Linen Canvas No. 44 6 43 Schematics 1 14 6 43 Seconds, City No. 1 14 6 3 14 6 2 3 15 Colors, per 100 lbs
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Dryer, Patent, Am'n		sout ca	ans, 90	keg
Frostings			******	24 600
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Damar.				
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Litharge. English				**** 7
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Pine Tar, bbls	******	*****		*****3
"in bulk Rosin—Common and Good E & F.				3
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Whiting Buanish				
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" No. 1 Colored				47
" No. 2 "				05
" Washed Machine				
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TI X 14 10 10 X 24. 18 X 22 8 70 20 X 30. 15 X 36 60 24 X 36. 16 X 36 10 26 X 44. 16 X 46 10 30 X 50. 10 X 54 10 30 X 50. 10 X 54 10 30 X 50. 10 X 56 10 34 X 50.	11.75	10.75		
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5 X 36 to 24 X 30	14.25	13.00	11.75	
6 x 28 to 24 x 36	15.25	13.75	12,50	
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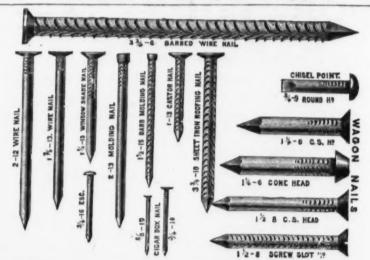
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Manufacturers of

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Medal of Superiority awarded at American Institute Fair of 1880.

This Shafting is superior to any in the market, and commends itself to the trade for the following reasons, viz:

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5th. Its surface is composed of magnetic oxide of iron, and consequently presents a journal or bearing surface that is unexcelled.

6th. The peculiarity of its manufacture is such as to entail loss in making it, if other than superior stock is used. Those purchasing it may therefore be assured of receiving first-class material.

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Where parties desire it we cut keyways or splines any length required, at a moderate

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CAST BUTTS DOOR BOLTS SHUTTER BOLTS, PAD LOCKS,

BARN DOOR HANGERS, & RAIL, CRINDSTONE FIXTURES SCREW & SIDE PULLEYS, NOISELESS PULLEYS, SHELF BRACKETS,

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Galvanised Hammock or Boat Snaps and Gaff Topsail Self-mousing Ship Hooks, Har-ness Snaps, Baby Snaps, Washer Cutters, Pocket Wrenches, Amateur Lathes, &c. MIDDLETOWN, CONN.

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Blasting Powder and Electrical Blasting Apparatus,
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As there are several Springs similar in appearance, but without our improvements upon the market, see that you buy only the

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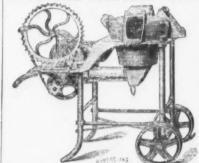


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STIRRUPS.



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Of Every Description,

Nos. 17 & 19 Green St., Albany, N. Y., Dec. 8, 1880.

To All Whom it May Concern:

To-day a decree in my suit against G. T. Fisher & Co, of Detroit, for an ringement of my patent, was made and entered, of which the following is an extract: At a session of the Circuit Court of the United States for the Eastern District of Michigan, held at Detroit &c , on Wednesday, the 8th day of December, 1880.

Present, Hon. H. B. Brown, District Judge. NELSON LYON GUYON T. FISHER, et al.

GUYON T. FISHER, et al. \(\)

It is ordered, adjudged and decreed, that the act entitled "An act for the relief of Nelson Lyon and Jere miah & James," passed by Congress and approved April 1, 1850, &c., is a good, valid and constitutional act. That the original patent, bearing date July 9, 1872, and numbered 138 &32, granted and issued to Joseph Barsaloux, Jeremiah & James and Nelson Lyon, when corrected by the Acting Commissioner of Patents, as directed by said act, was a good and shoe heels mentioned and described in said letters patent.

That the Reissued Letters Patent No. 998 dated May 11, 1880, granted to said Nelson Lyon for an improvement in metallic heel stiffeners for boot and shoe sor signally patented as a foresaid, it a good and valid patent; that said Lyon is exclusively possessed of said Letters Patent and the invention thereby secured. That the defendants, G. T. Fisher & Co., and each of them, have infringed upon the said patents and upon the exclusive rights of said Lyon under the same.

That said Lyon receive of said defendants all the profits, &c., they have made, and in addition thereto all the damage he has suffored by reason of the infringements by the defendants, and also the costs, charges and sibursements in the action.

It is also further ordered, adjudged and decreed, that a perpetual injunction be issued against said defendants, according to the prayer of the said complainant's bill.

All exercises each of development in protection has been issued and served on the defendants all exercises.

All questions as to damages and settlements in relation to infringements under my

patents must be addressed to and made with my attorney, WILLIAM H. KING, in my care at the above address.

NELSON LYON.



Wilson Bohannan, Manufacturer of Patent BRASS PAD LOCKS

For Railroad Switches, Freight Cars, and the Hard ware Trade. All sizes, with Brass and Steel Keys with and without chains.

Patent Horizontal Rim Cylinder Night Latch.



Self-adjusting to doors of any thickness, with Patent Stop and Drawer Back Knob RIGHT OR LEFT HAND. PASSENGER CAR LOCKS, Bronzed, Nickel-Plated and Japanned Catalogues and Samples sent upon application. BROOKLYN, N. Y

New York Wholesale Prices, July 27, 1881.

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Axle Grense.—Frazer's # D 6c	Cartridge Central Fire					
Ball Spring Balances	CardsE	fores and	Curry	new li	st. July.	Br. die ro &
Bella. disht Brass	Cotton Wool	reschere	i.			
" Extra Heavy	Cast Steel, P	olished eel Points	*****		e doz s	5.00, dis 30 % 2.00, dis 45 % dis 25 %
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Crank Taylor's dis 20&10 2 Brook's dis 50&10 & 2 Crank Taylor's dis 50&10 & 2 Brook's dis 50&10 & 2 Crank Taylor's dis 50&	Plate and Sh Deep Socket Cattle Le	allow soc		"	44	dis 35% 10 3
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Bit Holders. ₽ dos \$15.00—dis 40&5 € Extension, Baroer's. ₽ dos \$15.00—dis 40 € Ives". ₽ dos \$24.00—dis 40 € D'agonal. ₽ dos \$24.00—dis 40 € Angular. ₽ dos \$24.00—dis 40 €	Firm	Arling Buck	man eton I Bros.	Edge To	ol Co	dis 65&10 %
Blind Adjusters.—Domestic doz \$3.00, dis 15 %	# # ##	Withe	rby T	ool Co.		dis 65.810 % dis 65.810 %
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nley R. & L. Co., Rope and Iron Strap'ddis 40&10 1	Norway or Be Superior	st				dis 4085 %
ast Iron Barrel, Shutter, &c	Coal Hode	le				. dis 33½ %
Vrought Parrel dis 60% to 4 Square dis 60% to 5	Cookenne					Ala andread !
" Shutter, all Iron. Stanley's list dis 50&10 % " Brass Knob. " " dis 20&10 % Sargent's list dis 60&10 %	Cocks, Branch Bracking Globe Plain Bibbs ale and Beer	*** *****	44	11		.dls 40%
" Sunk Flush, Sargent's dls 75%10 % Staulev's dls 40%75% B. K. Flush, Com'a, Stanley's dls 50%0 %	Coffee Mil	tu.				dis 40 T
Coling R. & L. Co., Rope and Iron Strap'd dis 50&10 %	Coffee Mil Board and Bo: Wilson's Selsor's Pat American (En French Steel.	terprise M	ifg. C	0.)	2.50, 810,	35&10&5 % 50, d18 25 % d18 25 %
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R. B. & W. Carriage (old list.) Tire. Am. Screw Co.'s, Phila, new list, Nov 1, '79. dis 75.% "Bay State"	Compasses Calibers	*******	*****			
Stove—American Screw Co.'s dis 40 %	Dividers Bemis & Call	Co.'s Divid	ers	& Calli	pers.	dis 60&s %
" R. B. & W. dis 40 % Machine dis 5 %		Wing Doub Call's	& Ins	ide or o	outside.	dis 50% 5 %
Boring Machines. Upright, Angular.	Miller's Paten		*****	*******		dis 50 %
Boring Machines. Oprignt. August.	Coopers' T	nols.				
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83,00. dis 25 5 87,50. dis 10 5 50. dis 15@20 5 83,75. dis 20 5 82,25, dis 55 5	Acme \$20 per gross, dis 33\s,\xi\xi\xi\ standard \$24 per gross, dis 33\s,\xi\xi\ National \$6 co.\xi\xi\xi\xi\xi\xi\xi\xi\	Lathing, Nos. 1 2 3 Yerkes & Plumb Shingling, Nos. 1 2 3	# doz 8.00 9.50 # doz 8.00 .50 # doz 87.52 88.00 # doz 8.25 8.75 # doz 7.50 8.00	10.00 Each\$2.00 4.0 0.00 dis 30 88.50 Hales'Nos. 11 9.25 8.50 Draw CutNos 5	5 5.00 11.00 13.00 36.00—dis 30 % 1NCS. 100 18.00 dis 30 % 12 13 33.00 45.00.dis 2 0 8 10
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.\$1.40 \ 1085 \% 30c, dis 716 \% .\$1.40 \ dis70c \ 1085 \%50c \ dis 108	Large size, \$16; Medium, \$10.50 per ream; dis 1 Enameled and Tinned Ware.	Hinges.	% doz \$6.25, dis	Am., (2d quality) per g 3 blades, \$18	ross, 1 blade, \$7: 2 blades, \$12
118 6c&10&10 %	Tinned Sauce Pans	Gate, Clark's No. 1	# doz \$0.00.0	dis 60 % Steppins Pattern dis 65 % Genuine Tinned Ends	### ### ##############################
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July 28, 1881.	7
Rail. R Sliding Door Wrought Brass. * D 43c dis 10ct 10	Shovels and Spades, dis 15
Barn Door Inch	Old Colony
Per 100 feet\$2.10 2.70 3.30—net	Remington's (Lowman's Patent)dis 30 % Rowland's
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Barn Door, Sargent's list	Tin (P. S. & W.), Ieas
## tope.—Minfs' Net List. May 21, 1851, dis on scool be and over, 154, 2 % and over 154, 2 % inch and larger \$\phi\$ 5, 5. \$\phi\$ inch and larger \$\phi\$ 5, 5. \$\phi\$ inch and larger \$\phi\$ 5, 5. \$\phi\$ inch \$\phi\$ 15, 5. \$\phi\$ inch \$\phi\$ 16, 6. \$\phi\$ 1	Solid Table and Tea
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drs. Pott's Irons. dis 40 % Enterprise Star Irons. dis 40 % Combined Fluter and Sad Iron. per dos \$1400, dis 15 %	Rising Sun. # gross 8-75, net Dixon's Plumbage # b sc. net Squares.
Hand Paper- tacder & Adamson's Flint, to to 134\$4.75 % ream	Steel
** Assorted 4.75 ** ream Star	Try Squares and T Bevels
Sand Paper.	List of April 2, 1850 Tinned Swedes Tacks
Sare'sdis 20&5 %	Swedes Tacks, all kinds. dis 5,5 8 Copper Tacks and Nails. dis 30,5 Swedes Hupearian Nails. dis 30,5
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LETETA ALLEGATION AND THE CONTROL OF	Brush Tacks. dis 20 % Leathered Carpet Tacks. dis 20 % Market Carpet Tacks dis 20 % Mar
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Shab Lecks	Tan Borer Common and Ringdis 15 % Ives Tap Borersdis 15 %
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And over	Spring Tapes
and over. ***Nansage Musters or Fillers** ***Wiles. ***Miles. ***P doz \$30, dis 30 \$5 ***Merry. ***P doz, No. 15; No. 0, \$21, dis 30 \$5 ***Praw CutNo. 4. ***Cache \$30,00, dis 20 \$5 ***Praw CutNo. 4. ***Cache \$30,00, dis 20 \$5 ***Cache \$30,00,	Enterprise Mfg. Co. (Champion). dis 25 \$ Wood Bottom # dos \$12.00, dis 40.68 \$
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loynton's Lightning Cross Cuts, new list dis 20 % One-Man, ali lengths, dis 20	Machines (P. f. & W.). list add 20 \$\) Tools (P. & & W.). add 6 \$\) Transom Litters.
" Lightning Buck Saws X Par dis 25 \$ Lightning Hand, Panel and Rip	Wollensak's Patentdis35 % Rieher's Patent
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intw Frames. http://wrmont	" Catch-em-alive
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oer dos. \$10.00. liman's Genuine. \$\psi\$ dos \$3.00 and \$5.00 dis 10 \$ iman's Genuine. \$\psi\$ do \$3.20 dis 20.00 10 \$ per dos \$2.00 dis 20.00 0.00 \$2.00 dis 20.00 10 \$2.00 \$2.00 dis 20.00 \$2	Lothrops Brick and Plastering
No. 0, \$5.00; No. 1, \$15.00. dis 16 % ash 's No. 2, \$5.40, dis 20 &10 ft.	Brades' Brick dis 20 % Worrall's Brick and Plastering dis 20 % Garden dis 50 %
Bemis & Cali Co.'s New Patdis 40&c. 5 mis & Cali Co.'s Lever & Spring nammerdus 30&5 5 Platedis 10 5	Butter and Cheese
Saw Patent X Cut, per dos. \$12.00; fiand Saw, per dos. \$10.00	Viaca. Solid Box
set on les	Wilkinson's 159gc Parallel, Parker's 418 10 % Wilson's 418 10 %
atch, Counter, No. 171. \$\overline{\pi}\$ dos \$35, dis 35\overline{\pi}\$10. \$\overline{\pi}\$ Tea, No. 161. \$\overline{\pi}\$ dos \$15.cc dis 10\overline{\pi}\$10 Platform. \$\overline{\pi}\$6.oo. dis 45	Howard's dis zokto \$ Merrill's
IFDARES	Treaton dis 30 g
Eureka dis 25	
Signies	Baw Filers, Bonney's. \$\psi\$ doz \$24.00, dis 20\text{2510}\$ Stearn's
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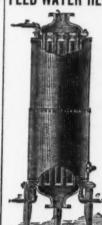
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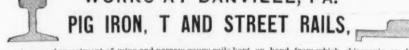
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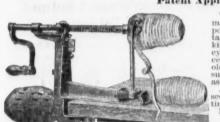
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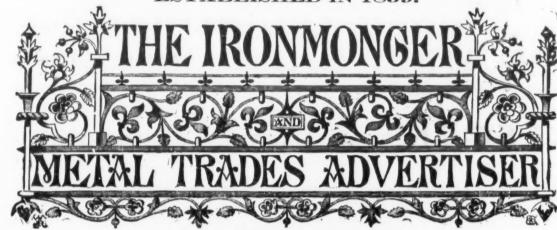
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THE IRONMONGERS' DIARY AND TEXT BOOK.

This is an annual, presented free to every Subscriber to the IRON TONGER AND METAL TRADES' ADVERTISER. It contains a large number of ruled skeleton pages for diary and other entries, and in addition much useful reference information, varied from year to year. It is handsomely bound in cloth, gilt; and as copies are used in thousands of establishments for a whole year, it is obviously a medium of exceptional value for advertisements. Sold to non-subscribers at 75 cents.

THE FOREIGN SUPPLEMENT,

With which is incorporated The Universal Engineer,

Is published every fourth week in connection with the extensive and world-wide circulation of the Ironmonger itself. The dates of its publication for the next twelve months will be as follows:

AUGUST 22, SEPTEMBER 17, OCTOBER 8, NOVEMBER 6, DECEMBER 3 and 31, 1881, JANUARY 28, FEBRUARY 25, MARCH 25, APRIL 22, MAY 20, JUNE 17 and JULY 8, 1882. This Supplement is published in

FOUR LEADING COMMERCIAL LANGUAGES

of the world, including English, and is sent to all the countries where they are spoken, thus placing the contents of the Ironmonger not only within reach out in the native language of eighty millions of German, forty-two millions of French, twenty-eight millions of Relian, and fifty-one millions of Spenish speaking people; or, in all, over two hundred millions of inhabitants in the principal nations where the best purchasers of manufactured goods are to be found.

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THE WHOLE FOREIGN HARDWARE TRADE.

so far as our experience of twenty years is concerned, will be covered by The Foreign Supplement at east twice a year. Thus a Price List or Advertisement inserted in the Ironmonger and Foreign Supplement is a strikingly powerful and most efficient way of publicity not to be compared with any of the other ordinary channels of communication.

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Established 1845. Office, foot of Houston Street, East River, NEW YORK.

NEWTON & CO.,

ALBANY, N. Y., Manufacturers of

BRICK FIRE

Stove Linings,

Range and Heater Linings

Cylinder Brick, &c., &c.

FIRE BRICK **And Furnace Blocks** DRAIN PIPE & LAND TILE.

Woodbridge, - - - N. J. BORGNER & O'BRIEN.

Manufacturers FIRE BRICK

Edge Pressed Furnace Blocks, CLAY RETORTS, TILES, &c., Twenty-third Street,
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Twenty years' practical Experience.

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ESTABLISHED 1836. Successors to JOHN R. WATSON, Porth Amboy, New Jersey. Manufacturers of

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OR ROLLING MILLS, BLAST FURNACES, FOUN-DRIES GAS WORKS, LIME KILNS, TANNERIES, BOILER and GRATE SETTING, GLASS WORKS, &c. Fire Clays, Fire Sand, and Kaolin for Sale.

HENRY MAURER,

Excelsior Fire Brick & Clay Retort Works,

Manufacturer of FIRE BRICK, HOLLOW

BRICK AND CLAY RETORTS.

WORKS: FERTH AMBOY, NEW JERSEY.

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FIRE BRICK, Tuyercs, Tites, Blast Furnace Blocks, &c. Miners and Qualers i 3 Woodbridge Fire Clay and Sand, and Staten Island Kaolin.

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STANDARD SAVAGE FIRE BRICK, TILE & FURNACE BLOCKS. OF ALL SHAPES AND SIZES.

Clay Gas Retorts and Retort Settings, and Miners and Shippers of Fire Clay.

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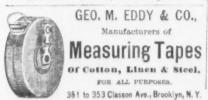
Buffalo, N. Y. CHAS. D. COLSON,

oundry Facings, Sand, Tools and Supplies CHICAGO, ILL.

UNION MINING COMPANY. Mount Savage Fire Brick.

EDWARD J. ETTING, Agent, No 230 South Third St., Philadelphia, Pa. MILLER'S BRICK PRESSES

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Front and Laurel Streets, PHILADELPHIA.

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HAMMACHER & DELIUS, of Hamburg, Germany,

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Any orders sent them will have the same prompt and careful attention as though they were sent us direct. Hoping you will favor them with your orders, we are, Yours truly,

HENRY DISSTON & SONS.

Escutcheon Pins, Small Rivets and Screws,

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PROVIDENCE STEAM TRAP CO., Providence, R. I.

"EAGLE" ANVIL.



WARRANTED!!

Better than the Best English Anvil.

iff one piece, of BEST TOOL CAST STEEL, PERFECTLY WELDED, perfectly true; of hardest temper and never to come off or "settle." It does not bounce the hammer back, and therefore can do more work with lighter hammer. Horn of tough untempered steel, never to break or bend. Only Anvil made in United States fully warranted as above. None genuine without our trade-mark.

N. B .- That the " Eagle" Anvil is the only one made at Trenton, New Jersey, and it must not be mistaken for an Anvil in the market called Trenton, but which is really of foreign manufacture, and an imported imitation of the English Anvil.

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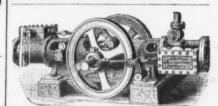


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61	Acorn, Loose Pin
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Blind	Narrow, Fast. dis 5c&10 % Loose Joint dis 55&10 % Butts.
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Chisel	*.—Socket Framing
Caster	-Bed (new list July 1, 1880,)dis 35&10 \$
Coffee 1880.	Mills.—Box and Side, new list Jan. 1. dis 45%
Goo	rs, Frary & Clark. J. Russell & Co., Lamson & dnow Mfg. Co. and Meriden Cutlery Co., Manu- urers' prices net.
Braw!	Drise y Walden Pocketnew list net srs, Frary & Clark, J. Russell & Co., Lamson & show Mg. Co. and Meriden Cutlery Co., Manu- urers' prices net. srg Knives. Mg. Co. 8
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0	Double Pointed Tacks	11
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%	Universal, No. 21/6. Novelty, No. 10.	STP
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N W W	TERMS.—Note or acceptance at 60 days, with current rate of exchange on New York, or a discount of 2 per cent. for cash, if remitted within 10 days from date of invoice.	В
XXX	The following are card rates. For discounts, prices etc., see weekly market report. Flat Bar. 11/4 to 4 by 3/4 to 1 inch.	B
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MMM	Barrel Hoops,	36
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0 10	Galvanized C. H. B.—(Charcoal Hammered Blooms.) Nos. 14 to 20	
10 10 10	Current discount, 37% % 40 %. Coal Screen Iron. 1% by % by 5-163.0C by % by 5-163.5C	
3	Act is than 2, toe extra. Wood's Patent Planished Sheet, 1st quality (A)	
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8000	Juniata Nail Rods	
t	Drag Dars	

	THE IRON AG
	red to 6ed. Nails. \$3.15 Best Quality Refined Cast Steel.
	\$\ \text{Square}\$, \$Plat\$, Qctagon and Round.\$ \$\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\
	Oil Well Steel Forgings. 10kgc No grade of Crucible Tool Steel shall be sold for less than above prices Machinery Steel.
	Crucible Crucible Crucible Round Crucible Crucible Round Crucible Cruc
	7-32 inch
	2 inches and under
	To 21 gauge 120 to ge to control of the control
	Auger and Auger Bit. Axie Steel for carriages and wagons. 7c Axie Steel for carriages and wagons. 7c Frog Foints and Plates. 884c Pick, plain and Mattock, beveied. 74c Skate Steel. 75c Table Cuttery. 76c Pike and Cant Hook. 74c Coal and Grantie Wedge. 76c Roller. 76c Roller.
-	Roller 796 Spindle, subject to Machinery classification 76 Trap Spring Steel 76 Forsed Crank Pins and Lathe Spindles 96 Piston Rods, plain 696 Slide Bars, plain 696 Torged to shapes 96 Crucible, Open Hearth or Bessemer.
	boller, Fire-Box and File Sheets, not less than 3-16 thick. Boiler, Fire-Box and Flue Sheets, not less than 16 thick. Circulars and semi-circulars, when ordered separately. Smoke Stack, to shape
20000	Square, Round, Half Round and Flat Bastard, 8- inch and over
	Tire Cast Steel. 1x\(^1\)4 and over. 1x\(^3\)4 and over. 1x\(^3\)4 and \(^3\)4 and \(^4\)6. 1 and \(^1\)3 iox\(^3\)4 and \(^3\)5 32. 86 4 and \(^3\)4 and \(^3\)3 and \(^1\)2 g. 85 60 id Safe Cast Steel. 90
	Agricultural Implement Cast Steel. Fork and Rake, Crucible
	Spring 4560 " apiral and taper, cut to lengths 5560 Tire, 20 thick and above 4560 Plow 4560 Plow 4560 Axlee Billets 460 Seigh Shoe 40 Cutter Shoe, cut to lengths and tapered 5560 Seythe Back Steel 760 Grain Drill Bars 7560 Rolling Coulter Blanks, cut and punched 360 Thrasher Steel 460
	Rolled Hammer Billets 45cc where research of Crueble, the difference in price shall not be greater than ic. per lb., except where especially provided in the lise. Terms.—Four months; 3 por cent. discount for cash, if remitted within 30 days.
	Furnace, Floor and Straightening Plates. 2½c Housings and Castings not otherwise specified. 3 c Guide Plates. 35c Spindles and coupling boxes. 3 c Sand Rolis and Pinlons, large size. 3 c small size. 3 c
200000000000000000000000000000000000000	Rolls and Castings. Furnace, Floor and Straightening Plates. Guide Plates. Guide Plates. Spindles and coupling boxes. Spindles and coupling boxes. Sand Rolls and Platons, large size. Pipe Mill Castings. Pipe Mill Castings under so lbs. Spur and Bevel Wheels, large. Small Size. Pulleys up to 30 inches. Engine Castings, light. Chitted Rolls.
	0 to 7 in. (10 m., 7 to 20 in. long. 43(c 8 to 15 in. 6 8 to 40 in. 43(c 25 to 24 in. 15 to 77 in. 44(c 14 to 31 in. 72 to 10 in. 44(c
	Strictly Fure White Lead in Oil, in kegs, 7c.: in 25 m Tin Falls, 5c. * b over keg price; 1435 m Tin Pills, ic * b over keg price; assorted, 1 to 5 b cans, 5c. per b over keg price; assorted, 1 to 5 b cans, 5c. per b over keg price; assorted, 1 to 5 b cans, 7c. in barrels, 64c Lead
	Window Gines. Per Box of 40 Feet.—Discount 60&10 % on single strength, 60&20 % on doubte.
-	Single Strength, Size. AA. A. B. C.
200000000000000000000000000000000000000	5 x 8 10 10 x 15
-	Double Strength. 6 x 8 to 10 x 15. 11 x 14 to 10 x 14. 12 y 11.7x 10.7x 10.00 11 x 14 to 10 x 24. 14 x 10 10 x 24. 15 x 25 to 20 x 30. 17 x 25 to 20 x 30. 18 x 25 to 24 x 30. 19 x 25 to 24 x 30. 10 x 25 to 25 x 25 to 25 x 35 to 25 x 35 to 25 x 35 to 24 x 35. 10 x 25 x 25 to 24 x 35.



Keystone Screw Co. 17th and Venango Streets, PHILADELPHIA. J. BILLERBECK,

Manufacturer of Iron Gimlet-Pointed Wood Screws

THE TRENTON ANVIL.



SOLID WROUGHT IRON, STEEL FACE (P. W. Pattern), WARRANTED.

Particular attention is given to the manufacture of all kinds of Anvils when draw

HERMANN BOKER & CO., 101 and 103 DUANE STREET, NEW YORK.

311 & 313 Avenue A, NEW YORK,



SHEET IRON WARE,

Patent Corrugated Bottom Coal Hods, PATENT ACME FRY PAN Edgar's Patent "Gem," "Victor," "U. S.," "Climax" and "O. K."

POLISHED FRY PANS, &c. Stove Shovels.

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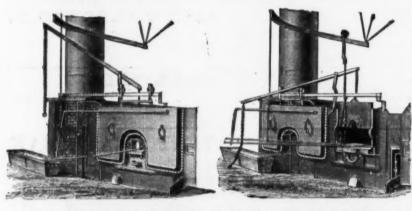
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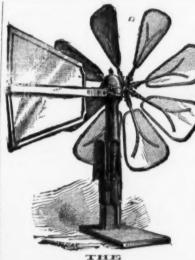
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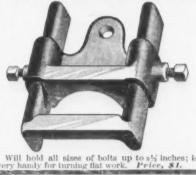
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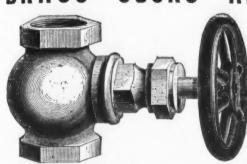
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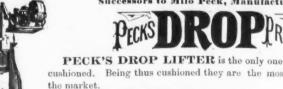
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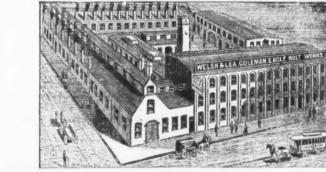
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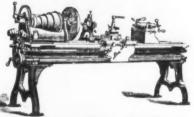


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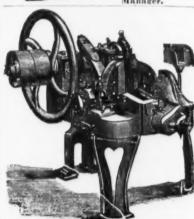
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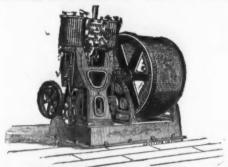
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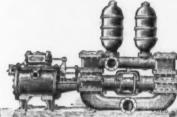
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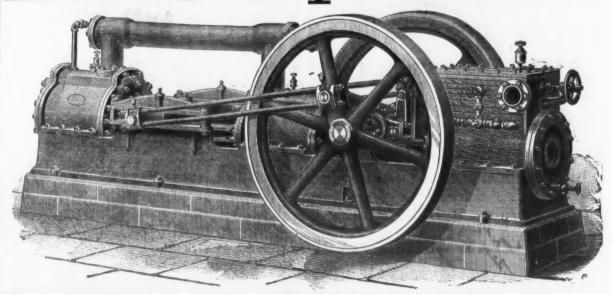
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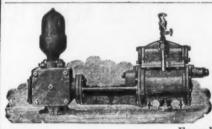
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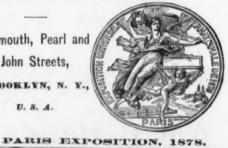


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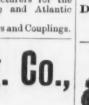
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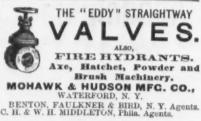
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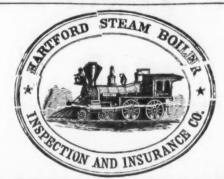
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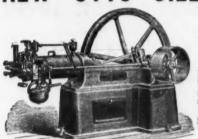


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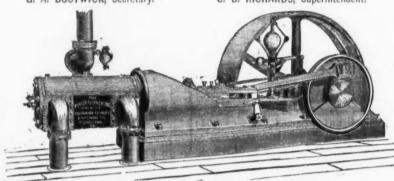
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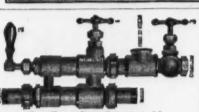
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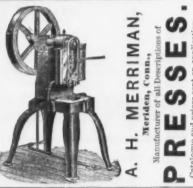
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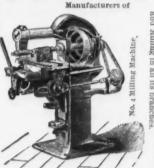


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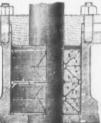
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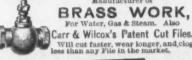
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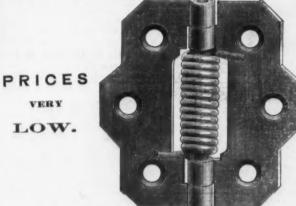
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